

American Forests *and* Forest Life

DECEMBER
1928

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ADEQUATE FOREST FIRE PROTECTION by federal, state, and other agencies, individually and in cooperation; the REFORESTATION OF DENUDED LANDS, chiefly valuable for timber production or the protection of stream-flow; more extensive PLANTING OF TREES by individuals, companies, municipalities, states, and the federal government; the ELIMINATION OF WASTE in the manufacture and consumption of lumber and forest products; the advancement of SOUND REMEDIAL FOREST LEGISLATION.

The ESTABLISHMENT OF NATIONAL AND STATE FORESTS where local and national interests show them to be desirable; the CONSERVATIVE MANAGEMENT OF PUBLIC AND PRIVATE FORESTS so that they may best serve the permanent needs of our citizens; the development of COMMUNITY FORESTS.

FOREST RECREATION as a growing need in the social development of the nation; the PROTECTION OF FISH AND GAME and other forms of wild life, under sound game laws; the ESTABLISHMENT OF FEDERAL AND STATE GAME PRESERVES and public shooting grounds; STATE AND NATIONAL PARKS and monuments where needed, to protect and perpetuate forest areas and objects of outstanding value; the conservation of America's WILD FLORA and FAUNA.

The EDUCATION OF THE PUBLIC, especially school children, in respect to our forests and our forest needs; a more aggressive policy of RESEARCH AND EDUCATIONAL EXTENSION in the science of forest production, management, and utilization, by the nation, individual states, and agricultural colleges; reforms in present methods of FOREST TAXATION, to the end that timber may be fairly taxed and the growing of timber crops increased.

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The Magazine of The American Forestry Association

OVID M. BUTLER, Editor

L. M. CROMELIN and ERLE KAUFFMAN, Assistant Editors

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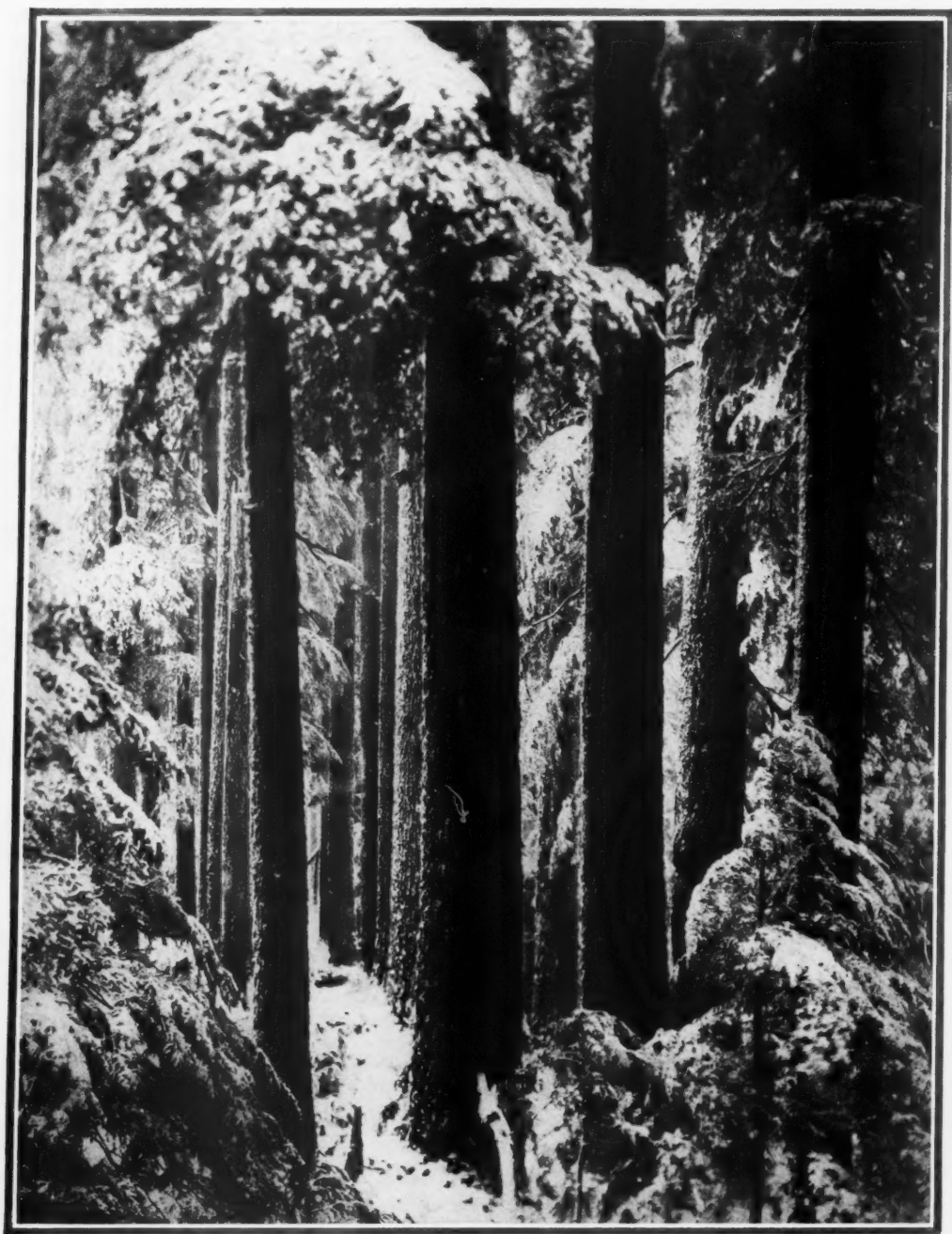
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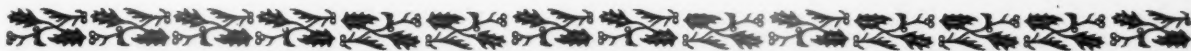
"The deciduous trees are inconstant friends that fail us when adverse winds do blow; but the pine and all its tribe look winter cheerily in the face, tossing the snow, masquerading in his arctic livery, in fact holding high carnival from fall to spring. The Norseman of the woods, lofty and aspiring, tree without bluster or noise, that sifts the howling storm into a fine spray of sound; symmetrical tree, tapering, columnar, shaped as in a lathe, the preordained mast of ships, the mother of colossal timbers; centralized, towering, patriarchal, coming down from the foreworld, counting centuries in thy rings and outlasting empires in thy decay."—John Burroughs

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The Christmas Fir Is Born

By HENRY CLEPPER

Illustrated by Alfred G. Clayton

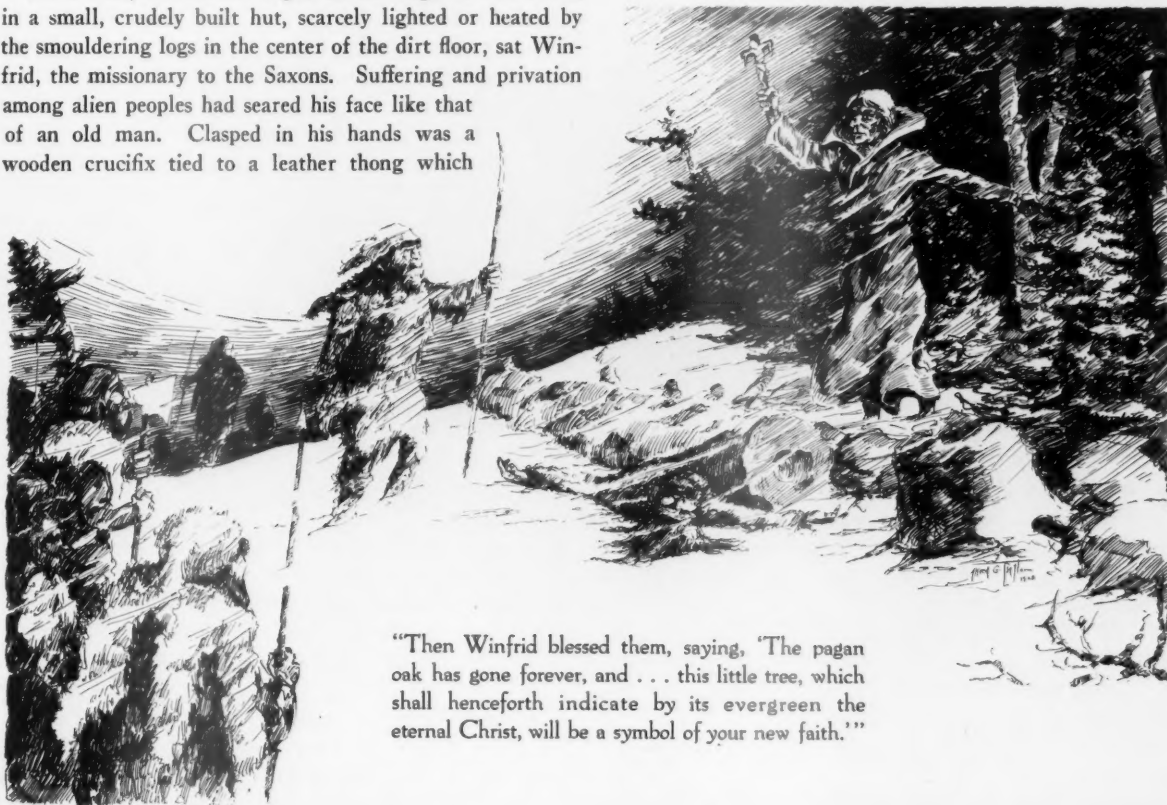


BEFORE Charles, the conqueror of Saxony, and Winfrid, his missionary, had converted the inhabitants of that wild forest land, the cruel old Saxon gods were held in great veneration by the people of those parts. Thor, of the Hammer, was accorded especial rites and worship, and to him was consecrated a dark wood, of great extent, on a mountain whose summit was used as the sacred meeting place of the wizards.

On a wild, mid-winter night on the edge of this wood, in a small, crudely built hut, scarcely lighted or heated by the smouldering logs in the center of the dirt floor, sat Winfrid, the missionary to the Saxons. Suffering and privation among alien peoples had seared his face like that of an old man. Clasped in his hands was a wooden crucifix tied to a leather thong which

confined his coarse brown robe. Since the early dusk he had sat there in meditation, rising occasionally to replenish the smoky fire with the fragrant birch faggots against the cold of the blizzard that swept moaning through the forest.

The gale that drove the snow from the North was becoming wilder, blowing icy flakes under the ill-fitting door. Throwing a few sticks on the fire, Winfrid rose and paced the narrow room. A crushing sense of defeat and lost purpose weighed upon him. For the people of the Harz, whom he had hoped to baptize that night, had flocked to the



"Then Winfrid blessed them, saying, 'The pagan oak has gone forever, and . . . this little tree, which shall henceforth indicate by its evergreen the eternal Christ, will be a symbol of your new faith.'"

summit of the Rammberg, where they watched in awe and rejoicing the ascending flames of their priests' fires. These fires, kindled in the massive granite rocks of the sacred grove, announced by their towering columns of smoke that victims for the sacrifice would be required.

The wind, it seemed to Winfrid, had become a wail, but soon he recognized it to be a human voice shouting for guidance as some one struggled through the storm. Swinging open the door and holding high a flaming stick, he ushered into the hut a huge man, swathed in furs and girded about with a wide leather belt from which hung a long-handled ax.

"Warm yourself, Aske," was his greeting.

"Thanks, Winfrid. It is a cruel night." The huge man stamped his feet and beat his hands together to quicken the blood made sluggish by the bitter cold.

The missionary noticed a certain unease about his visitor, and asked, "What is it, Aske? You are troubled."

"Freya, my little beloved, my daughter—"

"What misfortune has come to my pupil?"

"Is dying. For two days she has looked at me as at a stranger, without greeting. And—"

"Speak, Aske."

"Frenys, our holy wizard, has foretold she must die; her punishment, and mine, for—because—"

"Speak on, Aske."

"For opening her ears to your lies, Winfrid, about the Christ, who would take away the religion of our fathers."

"And you believe, Aske, you who are a grower of grain and learned above all men in the secrets of the forest, that my stories of the Christ Child to the girl Freya will destroy her?"

"Frenys has foretold it."

"Let us go."

In the home of the woodsman, Aske, the missionary sat beside the pallet of skins upon which the fair-haired Freya lay flushed with the fever-ill. At length the blue eyes opened and the girl smiled in recognition.

"It is the burning that will not let the restful sleep enter," said Aske.

Winfrid placed his hand tenderly on the hot forehead

of the girl. "Sleep, while I watch over you, Freya," he suggested in a whisper, "sleep."

"I cannot rest, father, for when I close my eyes the face of the wizard Frenys appears. I am frightened. Tell me of the Christ Child, then perhaps I may rest."

Winfrid glanced at the father questioningly who, torn between his love for his daughter and his fear of the wizard's prophecy, averted his face. Finally he consented: "She wishes it."

"Of all the stories about the Christ the most beautiful is the one I shall tell you now, Freya, for it is the story of His birth." Under the spell of that soothing voice the little sufferer forgot her ill, listening eager-eyed. "More than seven hundred years ago, this very eve, was born in a manger in the far land of Egypt, the Child whom the people call Jesus, the Saviour. Now the land of His birth is a place where there is no snow."

Incredulity was plainly visible on Aske's troubled countenance. "A land of no snow!" he scoffed. "The wizards have told us that all lands have snow. It comes each winter, nor, by the Hammer, have I ever known it to fail."

Not heeding the father's interruption, the missionary continued his story of the Nativity, interpreting it in terms

understandable to the inhabitants of that cold Northland. For during the telling several of Aske's fur-clad

and armed neighbors had entered the hut and had squatted in hostile silence against the skins on the wall.

Throughout the long winter night Winfrid watched and prayed beside that pallet. At dawn, while the girl at last slept peacefully, free of the burning, he rose

and said the Christ Mass, which has come to be known in our times as Christmas, the birthday of the Saviour.

Hardly had he finished when Frenys, the wizard, entered the hut and calling Aske aside said, "Make the child ready to lay before the Oak of Thor, who will receive her spirit as we celebrate the Jul festival."

Quickly, before the father could reply, Winfrid spoke: "No, Frenys. She will recover. See, she sleeps. To take her out in the cold will surely cause her death."



"Sleep, while I watch over you, Freya," he suggested in a whisper to the sick girl, "sleep."

"Meddler, enemy of Thor, whose mighty hammer will crush you," the wizard threatened, "it is your lies that are killing her."

"No. She will live."

"She will die, I tell you. And you also, Aske, unless you drive away with blows this false-tongued outlander."

Winfrid, realizing his conversion of the people depended on his conquering the wizard, commanded, "Aske, I forbid you. Freya must remain. See, already she is cured of the fever-ill."

Into the forest Frenys led the horde of fur-clad people, up to the sacred grove, where before the huge hollow Oak of Thor would be celebrated the Jul festival. His face dark with anger, and made hideous by the matted black beard surmounted by two curved horns seeming to project from his head, Frenys harangued the throng from the stone altar that stood under the Oak. With cunning words he influenced them against the missionary, recounting how since his coming disease had entered their homes, the game animals had departed, and their fishing places had failed, so that death and starvation stalked at each threshold. Notwithstanding all these calamities had been occurring annually for many years, he played upon the emotions of the superstitious assemblage until they were ready to lay upon Winfrid the blame for the suffering caused by their own unsanitary habits and wasteful slaughter during the chase.

The crafty Frenys then told of the missionary's tales of a Christ, one who would dare supplant the worship of Thor, the mighty Thunderer; and threatened them that by their further acceptance of this apostle of lies into their midst they would undoubtedly suffer greater hardships, too terrible to name. Working himself and his hearers into a frenzy, he shouted, "Bring the outlander, the liar, before the Oak that he may be sacrificed to Thor by us, and thus appease the gods' anger at our harboring him."

And he so influenced the throng that they quickly sent four hunters, brawny men of the tribe, to seize Winfrid for sacrifice. Meanwhile, Aske, strong man that he was, and a chief, quailed before the wizard's wrath and feared to speak a word in defense of the missionary. But being a man of action, not of words, he quietly worked his way, his ax gripped beneath his fur tunic, toward the hollow oak.

Soon Winfrid was led through the sacred grove, and bound upon his back to the sacrificial altar. The wizard now began a chant, half song and half wail, in which he sang the story

of Ymir, the frost giant, and his progeny, Odin, Vili, and Ve, and how the brothers slew the father; how Thor, Odin's first born, became the strongest of the gods and men by virtue of his mighty hammer, his belt of strength, and his iron gloves; how Thor lost his hammer and his killing of Thrym in its recovery; how he shattered the giant's skull and hurled him headlong into Niffleheim. Thus by tales of murder among the gods did Frenys excite the people to thoughts of murder of Winfrid.

Now the great wind, which had brought the blizzard of the previous night and which had died with the coming of dawn, again arose, blowing at first with brief gusts, then harder and harder until the air was a whirling mass of stinging ice and snow. Under cover of the storm, and unobserved by the people attentive to the chant, Aske, in mortal terror of Thor's anger, yet in obligation for the saving of Freya's life, contrived to sever the leather thongs binding Winfrid to the altar, and thrust the long-handled ax into his hand.

Winfrid leaped free. Frenys groveled, his beard in the snow, before the ax which the missionary brandished over his head.

The close-packed worshipers, awed by the terrific wind which they imagined to be Thor hastening in anger to avenge the sacrilege, made not a move while Winfrid sank the ax again and again into the hollow shell of the sacred tree. A great cry of terror arose, as, swayed by the blast of the storm, the lifeless oak began to topple, and then with a mighty crash swept to the ground, destroying the wizard Frenys in its fall. Winfrid stood erect and triumphant over the prostrate trunk of the pagan tree, while the populace bowed in fear and reverence before the superior strength of Christ. For in the spot where the pagan oak had stood, suddenly, it seemed, there appeared to view a young, green fir tree, which greatly astonished the people gathered there.

Then Winfrid blessed them, saying, "The pagan oak has gone forever, and with it the sacrifices to wicked Thor. This little tree, which henceforth shall indicate by its ever-green the eternal Christ, will be a symbol of your new faith."

Then turning to Aske, he said, "Take this young fir into your home and let it be your holy tree tonight, that you may honor with Freya the birth of the Christ Child."

And thus on that day was the first Christmas celebrated among the Saxons, and so, it is told, was the Christmas tree born, which was ever after to bring joy to the heart of childhood.

Contrast

There is no sharper contrast in the world
Than that made by black spruces
When they stand, dark, silent, secretive,
Their depths inscrutable, speechless with mystery,
Against the utter frankness of level snow.

—H. B. Davey



1—Pioneer type of living quarters for Lookout on the Gila National Forest, in New Mexico



2—Makeshift wooden tower on the Alabama National Forest—altogether unsafe, unsatisfactory and short-lived



3—Here, on the Salmon National Forest, in Idaho, the Lookout must stand upon a rock to make his observations.

5—While on the Manzanita National Forest in New Mexico the Lookout must work for three months with no shelter



4—A modern steel tower of the best type, guaranteeing safety and efficiency, on the White Mountain National Forest in New Hampshire



6—Showing a fireman's rude cabin, with inadequate quarters for both men and horses, on the Olympic National Forest, in Washington

These snap-shots on the National Forests stress the points made by Col. Greeley relative to the inadequacy of much of the fire-protective equipment now in use—both from the standpoint of the men upon whom individual responsibility for fire detection falls and of the people whose tremendous forest properties they must guard.

Meeting the Red Menace

Uncle Sam's Policy of Trying to Save Pennies on Forest Fires is the Weak Link in National Forest Protection

By COL. WILLIAM B. GREELEY

Former Chief, United States Forest Service

IF a modern city set about to provide the water mains, hose, and fire engines required for its protection at the rate of one-twentieth of the needed equipment each year, in order to keep down expenditures, its course would be viewed with amazement and its property owners would speedily be heard from. Nevertheless, that is substantially how the Federal Government is providing forest fire protection for the greatest property ever dedicated to public use and enjoyment—the National Forests. For almost twenty years Uncle Sam has been slowly procuring his fire protection equipment for the National Forests and it is still far from complete. In consequence, fire losses have been great, particularly in bad fire years. Pennies have been saved on one side of the ledger, to be sure, but on the other side dollars have been lost. That will continue to be the situation until the present policy of providing forest protection piecemeal from year to year is changed.

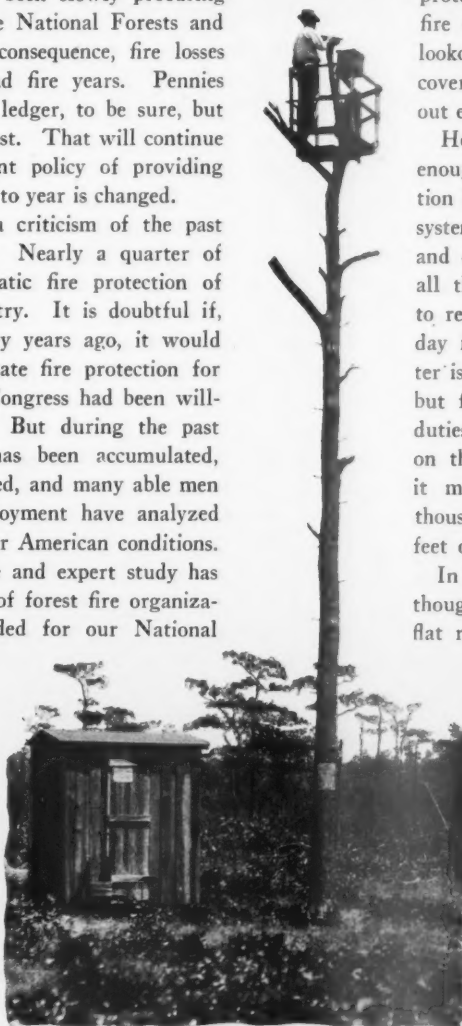
The foregoing is not meant as a criticism of the past policy of the Federal Government. Nearly a quarter of a century has elapsed since systematic fire protection of forest land was begun in this country. It is doubtful if, with the knowledge available twenty years ago, it would have been possible to provide adequate fire protection for the National Forests, even though Congress had been willing to make the money available. But during the past quarter century much experience has been accumulated, many experiments have been conducted, and many able men in Federal, State, and private employment have analyzed the problem of forest protection under American conditions. And out of these years of experience and expert study has come a clear conception of the kind of forest fire organization, or plant, that must be provided for our National Forests. We have now reached the point where protection which really guarantees protection in bad years as well as good must be provided without further delay. The American people, I am convinced, will be satisfied with nothing less, because they, in increasing numbers, are awakening to the stupendous investment represented by their National Forests. To permit a property of such incalculable value to go year after year inadequately insured against fire, merely to keep down the showing of Federal appropria-

tions, does not accord with the temper of American business.

To fireproof the National Forests—and that is the problem—calls for a fire protection organization or plant highly powerful in preventing forest fires and trigger-quick in detecting and extinguishing them when they do occur. There must be no flaw in the system responsible for discovering fires and communicating their location to the "engine houses" of fire-fighters. When fires start they must be detected promptly. That is the A B C of good forest protection, and the only way to assure quick fire detection is to have sufficient men in lookout towers and on mountain peaks to cover the areas with trained eyes throughout every hour of the day.

Here is a problem which sounds simple enough, but being a human one its solution is far from simple under Uncle Sam's system. High mountain peaks are windy and cold much of the time, and lonesome all the time. It is futile to expect men to remain on duty at these isolated points day in and day out unless adequate shelter is provided, not only for their comfort, but for the efficient performance of their duties. The lookout-man must be always on the job. If he fails to detect a fire, it may be the very fire that blackens thousands of acres and eats up millions of feet of public timber.

In early years there were those who thought a fire lookout provided with a flat rock on a mountain peak and a pine tree near by under which to sleep and cook was all-sufficient. Experience long ago dispelled that "practical theory." It is universally recognized today that the living and working quarters of the lookout must be combined in order that the watcher may cook, eat, and sleep in the same building in which he works. A good lookout man has "lookout psychology" developed to a high degree, and that is the sense of responsibility which unconsciously keeps him watching for smoke when he is preparing or eating a meal or



The tree lookout is still used on many National Forests because of insufficient funds to modernize the protection system



The natural beauty and wealth of the National Forests is typified by a view in one of the National Forests of the Northwest. "To permit a property of such incalculable value," says the author, "to go inadequately insured against fire merely to keep down the showing of Federal appropriations, does not accord with the temper of American business"

performing any other incidental work. A lookout house twelve or fourteen feet square with sides almost solid with windows, such as is illustrated herewith, has for more than ten years been recognized by the Forest Service as indispensable, and in its program of constructing forest fire improvements these standard houses have been given high priority. It would be expected that, after twenty years, housing and working facilities of such vital importance to the protection of the National Forests would have been well provided. Such is not the case. The Forest Service has by dint of much straining and squeezing of inadequate dollars completed three hundred and fifty-nine standard lookout houses. But three hundred and fourteen additional houses are needed. In short, the lookout plant of the National Forests of the country is only about one-half provided for after twenty years of operation.

This statement is perhaps overly conservative, because when lookout peaks have flat tops that are not commanding, the lookout man must be provided with a tower in order that he may visually sweep his district from horizon to horizon. Out of the experience and study of years, certain types of steel towers stand out as serving the lookout best. These towers vary from twenty to one hundred and ten feet in height according to the demand in different locations. On the National Forests today, there are three hundred and twenty-three of these steel towers. Two hundred and five additional ones should be constructed at once, and seventy-three of those already built should be repaired or replaced. Here again the fire protection plant of the National Forests is only about one-half completed.

Lacking the funds to provide its lookout service with needed equipment has forced upon the forest supervisors



A blackened scene in a National Forest, which graphically proves the author's statement that to gamble with such an uncertain and dynamic force of destruction as forest fire, with the National Forests as the stakes, is not good government



Into country such as this—and there are millions of acres like it in our National Forests—telephone lines must be constructed if Uncle Sam's protective system is to be complete. The system is now short over 10,000 miles of needed lines

and rangers various and sundry makeshifts. As in the early days you will still find lookouts constructed from tall trees. Such makeshifts are dangerous, inefficient, and costly in the long run. Not every qualified man is willing to work under such conditions. Furthermore, it is seldom practical to place a telephone at the top of a lookout tree. It usually must be placed at the base, and the lookout man upon discovering the fire must scramble down his tree to report it; up again to note changes in the fire; and down again to report *ad infinitum* if it turns out to be a large fire. Here is a very distinct handicap upon speed, and speed is the stuff that real fire protection is made of.

Without telephones speed is lacking. Telephone lines, therefore, rank in importance with the lookouts. They transmit the alarm when the lookout man discovers a tiny smoke and reports its location to the nearest fire guards, rangers, or emergency fire fighters. Approximately 33,165 miles of telephone line have been constructed on the National Forests. The highest priority has been given to the telephone line as a part of the protection plant, and the construction of 33,165 miles represents formidable progress. But there is still a gap or shortage in adequate telephone protection of the National For-

ests by 7,000 linear miles. In addition, almost 5,000 miles of existing lines call for replacement.

The absolute necessity of a complete and dependable system of telephone lines if the National Forests are to be fire-proof is clearly obvious. Having spent some twenty years in the Forest Service, I know first hand how hard its men have labored mentally and physically in order to create a worthy communication service that would measure up to the forest fire hazards. With the inadequate appropriations available, they have shown all kinds of technical and executive ingenuity in making the

best progress possible, but you can stretch a dollar just so far and no farther. At the critical point of telephone communication, therefore, forest fire protection on the National Forests at the end of a quarter century stands almost twelve thousand miles short of what should be its minimum dependable mileage.

Mention should also be made of the simple structures necessary to house the fire guards and the animals required for transporting men and equipment to fires. To assure



Rangers stringing a telephone line on trees in the Flathead National Forest, Montana. Speed in reporting fires when they are detected by the lookout men is essential to good fire protection. Without telephone lines, speed is lacking

speed, these cabins must be located at points where the men can quickly reach any fire within the district. Otherwise, fires may get beyond control before the fire guards reach them. The minimum type of fire protection which the American people want for their National Forests would provide not less than fourteen hundred such cabins, or almost six hundred more than are now available.

Many other essential features of a modern forest protection plant might be mentioned, but two will suffice. Fire breaks or cleared strips strategically located in respect to valuable timber often will stop the spread of an oncoming fire, and they are always useful—often critically so—as fighting lines, or “trenches,” from which the fire fighters can back-fire and stop the advance of the red enemy. The Forest Service during the course of twenty years has been able to construct a pitifully small mileage of fire breaks compared to the vast acreage of timber-bearing lands within the National Forests. The money simply has not been available, despite the fact that in certain localities the need of fire breaks is urgent. No better illustration of the recognized urgency of fire breaks not only by the Forest Service, but by the public, could be cited than the case of Southern California. Here the work is being financed jointly through a Federal appropriation and contributions raised by local interests and communities dependent on the National Forests for their water supply.

In the fighting, sweating, grilling game of forest fire protection, just as in war, there are the hand-arms—the fire tools—and equipment such as trucks and pumps, which experience has found necessary in this type of warfare. Without proper and adequate fighting tools and supporting equipment and supplies, fire fighters are as impotent as unarmed soldiers. From the beginning, the Forest Service has had to scrimp and economize in its purchase of fire-fighting equipment. Such years as 1910, 1919, and 1926 demonstrate the tremendous gambling chances which Uncle Sam is taking with the red enemy by deferring completion of his forest protection plant.

What will it cost to complete this plant and provide reasonable protection for this vast public property, with its enormous wealth of timber and its incalculable values for recreation, game conservation, regulation of stream flow, and prevention of floods and erosion? The Forest Service estimates that \$2,000,000 will bring its protection organization to a point competent to deal with a normal fire year. But this is not enough. Real fire protection of the National Forests calls for equipment that will protect during the abnormal as well as the normal fire years. Otherwise efforts and expenditures during the normal fire years may be wiped out in the abnormal year. When all is said and done, it is the abnormal or bad fire year when the great losses occur, and they are the years to prepare for. With these years in mind, the irreducible minimum which should be promptly invested in the National Forest fire protection plant is \$3,000,000.

One could not say that a prudent business man responsible for the management of the National Forests would make this expenditure without a moment's delay because

the prudent business man would have made it years ago. Such an expenditure is sound spending and permanent economy, and those of us who have faced the red enemy of forest fire on the National Forests year after year have had it burned into our very beings that if the protection of these great public forests is to be placed upon a business-like foundation, the owners of these properties—the American public, through its agent, the Congress of the United States—must provide their managers with a complete and modern fire-fighting plant.

It has been estimated that the National Forests represent a land and timber value in excess of one billion dollars. This is an incomplete estimate. Scenic, esthetic, social, and economic values are represented by the National Forests that can never be translated by the dollar sign. To a nation as wealthy as the United States it seems unbelievable that it should falter or hesitate at the expenditure of \$3,000,000 to provide minimum protection for this greatest of all natural resources under Federal control. To gamble with such an uncertain and dynamic force of destruction as forest fire, with the National Forests as the stakes, is not good government. Neither is it good economy. For want of \$3,000,000 in fire protection equipment, many times that amount of timber or other values may go up in smoke during any year of bad fires. In 1910, one of the worst fire years, the loss in National Forest timber reached the staggering total of nearly \$15,000,000. In both 1919 and 1926, also abnormal fire years, public timber considerably in excess of \$3,000,000 was destroyed by fire. A mere valuation of the stumpage burned by no means expresses the fire loss, because it does not include damage to private property, the value of young growth, the cost of reforestation, or the intangible losses represented by soil erosion, floods, changes in stream flow, destruction of game, scenery and recreation.

In respect to the one item of reforestation, let me illustrate: In Montana and Idaho, a district where the National Forests have suffered heavily from fire, 270,000 acres of the best forest growing land have during the past nineteen years been so completely denuded that artificial reforestation costing ten dollars an acre must be resorted to. This means that to bring this land back to growing timber an expenditure of \$2,700,000 sooner or later will have to be made. It does not require many examples of this character to show that the Federal Government's present policy of deferring improvements needed to protect the National Forests from fire is both a forest-losing and a dollar-losing policy.

Few things would do more to strengthen the morale of the forest officers who are struggling with the fire problem than a more business-like attitude toward the investment needed in a fire protection plant. And I can think of no expenditure that in the long run will bring to the owners of the National Forests a greater satisfaction spiritually and a greater return materially in terms of timber saved and acres maintained in growing forests.

In explanation of the Government's policy in respect to National Forest fire protection it ought to be said that the varied public interests in forestry have created increasing demands for Federal expenditures in many directions. The Government is fostering many activities on the National

(Continuing on page 748)



I. Evergreens of the Old Testament

SPEAK to anyone of the trees of the Bible and the immediate response will be, "Well, there are the Cedars of Lebanon." There they *were*, they may say, but not *are*. A

large grove of them was found on Mount Lebanon proper, and another grove on the back of the mountain, by Dr. William M. Thomson, a missionary to Palestine, in 1848, and he doubted their antiquity despite their great size. But these are no more. Today various locations are named by

This is the first of a series of six articles which deal authentically with trees, groves and forests of the Holy Land, which ancient tradition and sacred history have written indelibly into the earliest records of Christianity.

as many authorities for the "last stand" of the Cedars of Lebanon. It is, however, known that there are at least three small stands in the mountains of Greater Lebanon, about thirty miles north of

Beirut. A specimen of this majestic tree is growing in Lafayette Park, Washington, D. C.—a dwarfed specimen, it is true, yet one catches in its dome-shaped form and horizontal, strangely contorted branches, somewhat of the splendor of those lofty kings of the forest when they were true symbols of strength



James Ricalton

The Cedars of Lebanon, once part of the great forest that covered the western slopes of Lebanon from the Phoenician coast behind Tyre to Antioch. The last of these famous trees were cut for firewood during the World War

and glory and power (*Psalms 92:12; Ezekiel 31:3*).

Cedar from the Lebanon was preferred above all other woods for building uses by reason of its tremendous size, its durability, and, not the least, its fragrance. All the cedar referred to in the Old Testament came out of Lebanon; a possible exception (*Numbers 24:6*) may be a corruption of the original meaning. So it was to Lebanon cedar that Amos (2:9) compared the mighty sons of Anak, the Amorites. They were "strong as oaks and like the height of cedars." Solomon was not alone in his plunder of these mountains. The kings of Assyria and of all other countries embellished their palaces with its wood (*Isaiah 14:8*); masts for the great fleet maintained at Tyre were of cedar (*Ezekiel 27:5*), as were also their chariots (*Song 3:9*).

The Temple of Solomon, or the house of the Lord, so the chronicler tells us, was conceived by David, who said it "must be exceedingly magnificent, of fame and glory throughout all countries." It was to be made of cedar of Lebanon, and he purchased for the site the great threshing floor of Araunah, or Ornan, the Jebusite, in Mount Moriah, at Jerusalem; and the "Zidonians and they of Tyre brought much cedar wood to him, for Hiram, King of Tyre, loved David and had before this built a house for him" (*2 Chronicles 3:1; 1 Chronicles 22:4; 2 Samuel 5:11*).

When to Solomon was given the task of finishing what his father had so auspiciously begun, he made a treaty of commerce with the son or grandson of his father's friend, Hiram, King of Tyre, for timbers of cedar and of fir wherewith to build; for Solomon, wisest of all men, knew trees

"from the

cedar tree that is in Lebanon even unto the hyssop that springeth out of the wall" (*1 Kings 4:33*).

Some conception of the magnitude of the order which Hiram received may be formed when one remembers that it required seven back-breaking years to complete the Temple and thirteen years to build Solomon's own private house; that, at the end of these

twenty years, he had also built the house of the Forest of Lebanon and the great Porch of Judgment, as well as a house for Pharaoh's daughter, his favorite wife (*1 Kings 6, 7; 1 Chronicles 28, 29; 2 Chronicles 3, 4, 5, 6, 7; Jeremiah 22:14*).

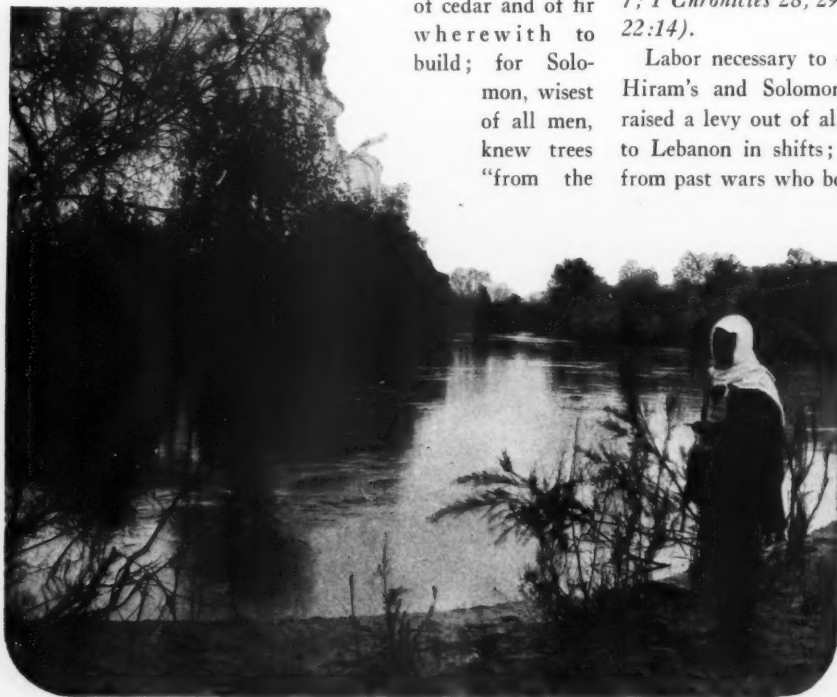
Labor necessary to compass this task was had from both Hiram's and Solomon's subjects. On his part, Solomon raised a levy out of all Israel of 30,000 men and sent them to Lebanon in shifts; also 150,000 laborers, captive slaves from past wars who bore burdens and were hewers of stone and timber; while over all were officers to the number of 3,300—an army going to war against the "trees of God."

Hiram, King of Tyre, to whom belonged the wood and the stone, the gold and the brass, matched this conscription with his own servants, who worked side by side with Solomon's men, even to transporting of the timber and stone by raft to Joppa and thence to a point designated by Solomon, there to be fashioned to his desire (*1 Kings 5:8, 9, 10*). The furnishing of his own servants by Hiram was doubtless a necessary act. The Israelites, being a tent-dwell-



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The thousand-year-old cypress trees on Mount Sinai



Publishers Photo Service

On the tree-fringed banks of the River Jordan, where Christ was baptised. The libhneh, or poplar tree, was once very common in the valley of the Jordan

ing nation, were unskilled in such pursuits; there is, in fact, scarcely an allusion to the manufacture of home-grown timber to be found in the Old Testament.

The final scene in this league of commerce between Solomon and Hiram remains incomprehensible. After Hiram had given him "of cedar trees and gold," and what a quantity of gold and of cedar trees had been used, "according to all his desire," Solomon gratuitously made a gift to Hiram of twenty cities in the land of Galilee. That the gift would be a worthy one it was but natural for Hiram to expect, in all conscience. True, Hiram had been repaid in food for his household throughout the years of their covenant, and a lumberjack will eat; but Hiram's chagrin and disappointment may be imagined when he went for to see this gift of his friend and colleague to find merely twenty poor, straggling villages, each



From a drawing by Gustave Doré

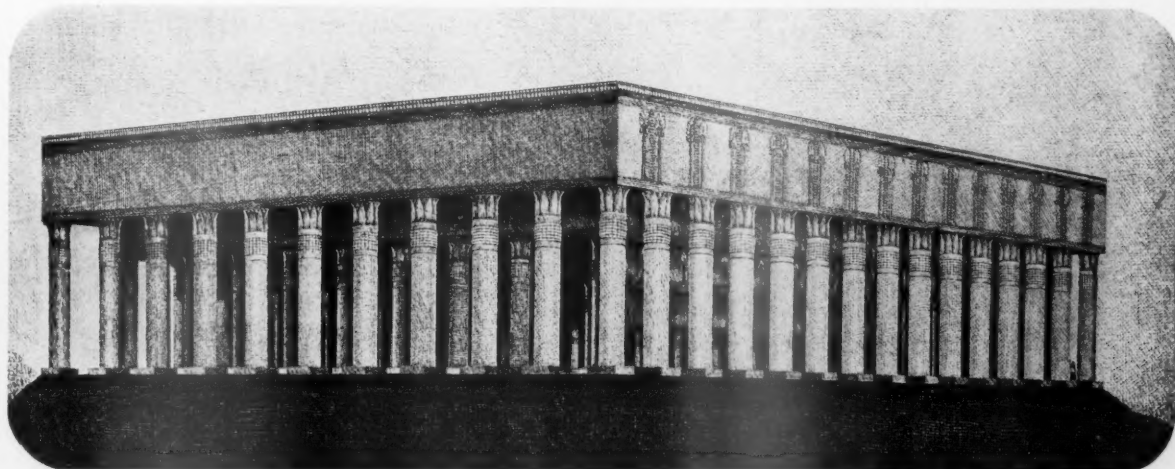
Warring against the trees of God. Solomon's vast army of Israelites hewing and hauling the Cedars of Lebanon for the building of the Temple of Solomon, a task which required seven years

a handful of miserable huts. He named the chief village Cabul (*1 Kings 9:13*).

In the records kept by Hiram and Solomon, it is highly probable that all timber not cedar was for convenience sake classed as fir, fir meaning either fir or pine, cypress or box, or any one of the evergreens other than the cedar tree. Seven such trees are named in *Isaiah 41:19*, "the cedar, the acacia tree, and the myrtle, and the oil tree; the fir tree, and the pine, and the box tree," all these being a translation from the Hebrew *tidkhar*, or *t'ashbshur*.

Beams and rafters of houses in David's time were of either cypress or fir wood, as were their musical instruments; ships also were built of the one or the other kind (*2 Samuel 6:5*; *Ezekiel 27:5*; *1 Kings 5:8, 10*; *2*

Chronicles 2:8). The cypress tree of the King James' Version (*Isaiah 44:14*) is rendered holm-tree in the Re-
(Continuing on page 765)



From a drawing by Timothy Otis Paine, LL. D.

The Temple of the Forest of Lebanon, in the world-famous structure built by Solomon. The giant pillars were hewn from the Cedars of this famous forest of the Holy Land



DECEMBER! Silently the month advances. There is nothing to destroy but much to bury. Bury then, Thou Snow, that slumb'rouslyallest through the still air, the hedgerows of leaves! Muffle thy cold wool about the feet of shivering trees! Bury all that the year hath known, and let thy brilliant stars, that never shine as they do in thy frostiest nights, behold the work! But know, month of destruction, that in thy constellation is set that Star whose rising is the sign for evermore, that there is life in death! Thou art the month of resurrection. In thee, Christ came. Every star that looks down upon thy labor and toil of burial knows that all things shall come forth again. Storms shall sob themselves to sleep. Silence shall find a voice. Death shall live. Life shall rejoice. Winter shall break forth and blossom into Spring and Spring shall put on her glorious apparel and be called Summer. It is life! It is life through the whole year.

—Henry Ward Beecher



Taming the Christmas Tree

The Growing of Evergreens for the Yule-tide Season Enters the Ranks of New American Industries

By OVID M. BUTLER

SEVERAL years ago, just before Christmas, Henry Stabler, of Fairfax, Virginia, was on the wholesale line of Washington's Center Market. Every year, at this time, the collectors and vendors of Christmas greens pile high their wares on this historic old square. Mr. Stabler's reason for being there was that he, like many another farmer, had cut in advance a supply of scrub pine Christmas trees from a piece of wild land to be cleared, and he was trying to turn them into cash. The results, later computed, proved discouraging. He had to debit a loss after a week of hard work, cutting, loading, hauling, attempting to sell, and finally hauling away and burning the residue. But that experience was the beginning of his Christmas tree plantation.

"Why not offer the people something better than scrub pine?" Mr. Stabler asked himself. "Those fellows on the market that had ordered spruce and fir trees from New England seemed to be selling more trees and getting better prices. Why cannot the city folks use a smaller Christmas tree, one that would be easy to set on a table or use as a decoration in places where space is at a premium?"

"Why not plant Christmas trees and grow them to the proper size? There is space on an acre for nearly five thousand Christmas trees to grow, but

in cutting those scrub pines we found only about two hundred good ones to an acre. Why not sell some of them on their own roots? Then they might serve all winter or longer, instead of being ready to discard at the end of a week. Why not find out from the Forest Service how it is that they grow little trees cheaply enough to plant large tracts for growing timber?"

The result of these cogitations was that about the first of April, the following spring, Mr. Stabler found himself in possession of twelve thousand baby Norway spruces, purchased from a nurseryman who specializes in growing conifers from seed. Before they arrived, he had prepared a bed and made a planting board according to the directions of the Forest Service. Two men planted the trees in twelve hours, without previous practice, attaining a speed that averaged one hundred plants to the hour and often went as high as thirty plants to the minute.

The object of planting the trees in a bed for the first

year instead of directly in the field was three-fold: First, he felt that he could secure a better stand in the bed than in the field, because of greater convenience in watering and shading. Second, he wanted another year in which to subdue and improve the field in which they were to be planted. Third, it reduced greatly the cost of taking care of



Maryland State Department of Forestry

Three-year-old Norway spruce in nursery beds ready to be transplanted on waste land for the production of Christmas trees

the trees that year. But, in spite of watering and weeding and mulching, forty per cent of the seedlings died in the bed the first year. The sixty per cent that survived increased so much in size, however, that when they were lifted out to plant in the field the following spring they bulked eight times as large as the seedlings when bedded.

Planting the transplants in the field, Mr. Stabler found, was not difficult. The helpers worked in pairs. One would thrust his spade into the soil and with a pull of the handle open a hole beside the blade. The other, who carried a bucket of root-puddled plants, would then thrust the root of the plant into the hole. The spadesman would then withdraw the blade and close the soil onto the root with his foot. The average speed for this operation was two hundred plants an hour for each pair, and the average loss of plants was less than one half of one per cent. From that time there were almost no losses. As to the trees' rate of growth, Mr. Stabler says:

"I might give the average height of the trees when planted, the length of time they have grown, and the average height now, and allow the reader to calculate the yearly increase in height by dividing the amount of increase by the number of years. The reason I do not do this is that the trees have not followed any such rule. Instead, the increase each year has been, for each individual tree, proportionate to the height of that tree, the larger ones making more increase than the smaller ones. A young tree is doing very well if it doubles its height each year for the first four years."

Mr. Stabler is one of many persons who has started Christmas tree plantations during the last

five or ten years. This phase of the industry has been fostered by the extensive program of forest conservation and the need to protect the country from the indiscriminate cutting of wild trees to the number of eight or ten million every Christmas. So rapidly has the Christmas farm idea grown that literally thousands of the little trees that

will lift the hearts of children during the forthcoming holiday season never knew the forest, but were grown in symmetrical rows on sheltered plantations, groomed from infancy for their glittering night of nights. The Christmas tree plan-

tation is not merely a charitable institution which helps protect the forests, but when well located and well managed, it can be made a paying proposition, as growers in New York, Pennsylvania, Michigan, Ohio, Indiana and other states attest. It requires little care and the initial expense is small. If it is located well, in reference to a good market, it may pay annual receipts as high as \$300 or more an acre.

In the past, most trees for the Christmas trade have been cut from the forests and shipped long distances to the cities. Or else they were cut in near-by woodlands and pastures where they grew wild and haphazard. The Government has set the seal of its approval upon supervised thinning of the forests by cutting such trees where growth is dense, and the plantation that is located in a region where wild trees are plentiful is likely to find competition keen. But near large cities and towns the Christmas farm is flourishing and growing in numbers. More fragrant and symmetrical than the forest trees are the sturdy little firs and spruces grown as a Christmas crop. The regular spacing enables

them to get plenty of light from all sides, affords them uniform space in which to grow and tends to develop them into shapely trees. Grown near their market, they do not have to be cut as soon as forest trees, or shipped such long distances; they hold their needles longer, are not crushed and maimed by baling, and, unfaded, they bring into the house their spicy woodland odor.

And Christmas trees can be

made to grow on land that appears forbidding and barren. Steep hillsides, rocky or worn-out farmlands and unused meadows may often be turned to good account. The sturdy little evergreen does not ask rich soil and, indeed, grows into a better Christmas tree when the soil is somewhat poor, for then it reaches its height slowly and the branches de-



Christmas trees can be made to grow on land that appears forbidding and barren. Boy Scouts of Riley, Indiana, planting stripped over coal land to evergreens, every other tree designed for the Christmas market

velop close together. In the desolate region of the southwestern Indiana coal country, for example, the miners adopted a reforestation program and planted between ten and fifteen thousand acres of stripped-over land in evergreens, every other tree destined for the Christmas trade after a few years' growth, and the remainder to be left for timber production. Some growers, however, who have gone into the business on a large scale prefer to use good level land, since they find it easier to cultivate.

"At first we did our planting on hillsides and rough land," says A. S. Buskirk, of Independence, Ohio, "but now on good level land. A friend of mine started to grow trees about the time we did, and it was more of an experiment at that time. He was using the hillsides the same as we. I well remember calling on him one

spade, the men working in pairs. At our home farm we plant them eighteen inches apart in rows three and a half feet apart. We have a large sale of table trees about eighteen inches high, and we aim to take out every other tree. But on our other farms we plant three and a half by three and a half. We commence to cut when the trees are about five feet high, as we get a grade at that time from four to six feet and we find it is the best selling size. We tie five in a bundle and try to average the bundles about the same, from four to six feet. If the trees have done well they should



A pure stand of Norway spruce on a Christmas tree plantation, seven years after transplanting. These trees are now ready for the market



A mixed plantation of red pine and Norway spruce, five years after transplanting as nursery stock. The spruce will be cut for Christmas trees and the pine left for timber growth

day and having him tell me of a certain nice field he was going to plant for Christmas trees the following spring. When we were discussing the planting of that field, this is what he said:

"I am making more money on my Christmas trees per acre than any of the other crops I grow, for the amount of labor put in. Then why shouldn't I use the level ground which is easier to work? Then I will be able to grow a better tree."

"And he was right. From that time we have figured that the trees should be planted on the level ground, which is easier to work. We grow the Norway spruce, as we found, after trying several varieties, that it makes us the most money. We buy the little seedlings three to five inches high, and plant them two inches apart in rows twelve inches apart. Left in the beds three years they should, at the end of that time, be from ten to twelve inches high. If we are planting pasture land, or land that has not been plowed, we move them with as much soil as possible but, if planting on land that has been plowed and worked up in good condition, we shake off the dirt. We plant them with a heavy

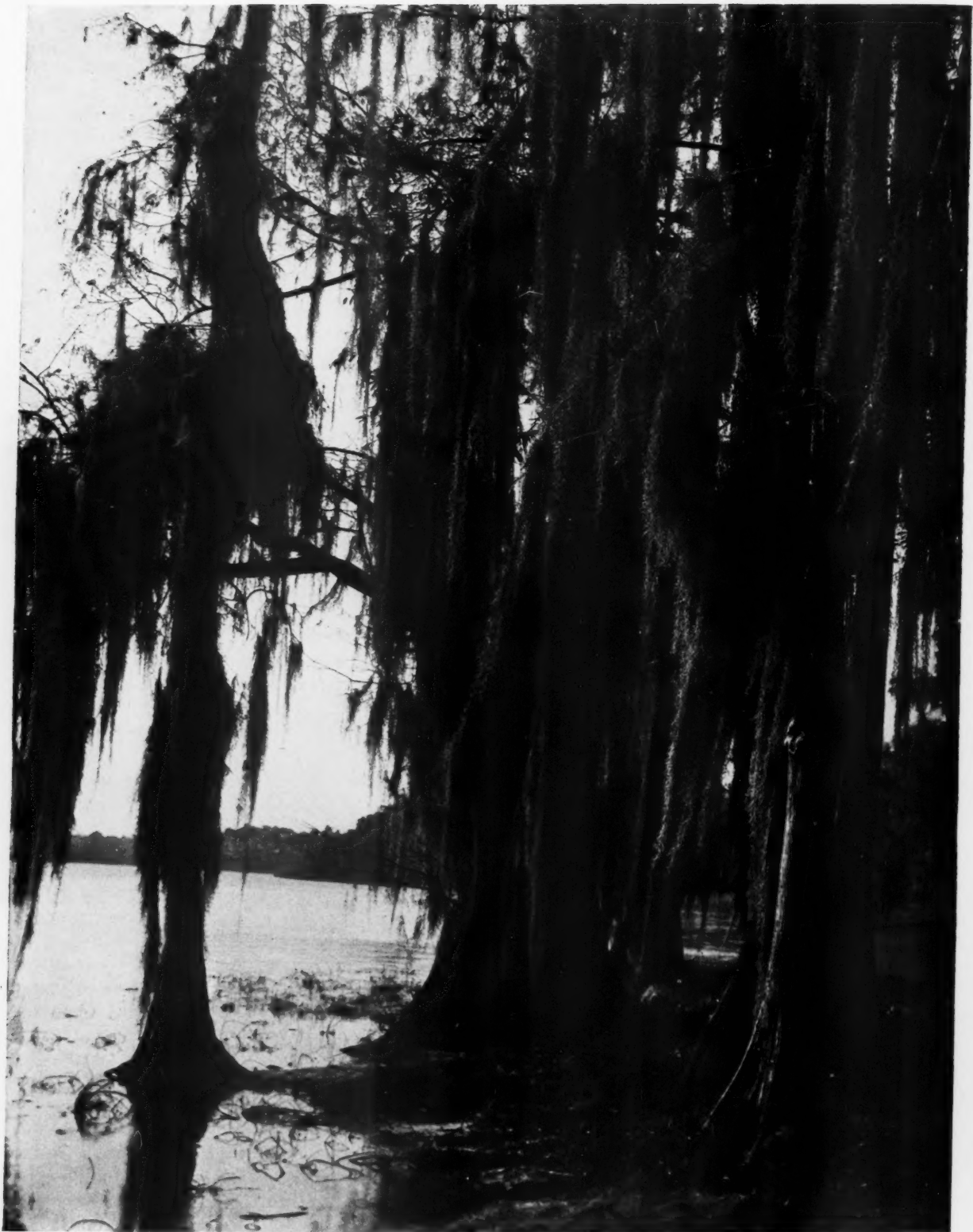
cut about sixty per cent the first cutting, which will be about five years after planting. The balance will be taken off the following two years, and you will be surprised to see how nice

they will make up in these two years. There is a very limited sale for trees above six feet, although they do bring a nice price. But we growers of Christmas trees have all had our experience in that and found that it is a mistake, for when we get a large surplus of trees on hand the result is we have to take the tops out and get no more for them than we could have got five or six years before."

The novice, who plans to experiment in Christmas tree growing by planting an acre or two of unused land, should first investigate the prospects of selling the crop he plans to raise. He should take into account the presence or absence of other plantations near by and the availability of wild trees in the vicinity for the Christmas trade. Too much competition from either source will bring prices down so low that the investment may show red at the end of the year.

Evergreens most favored for Christmas tree planting east of the Rocky Mountains are the firs and spruces, which comprise at least seventy per cent of all that are used. Most highly recommended for planting are the Norway and white

(Continuing on page 742)



Photograph by John Kable.

Impressive in their serenity, these magnificent cypress trees rise tall and straight like the pines, creating an atmosphere all their own, of peace and quietude—a "brooding stillness"

Southern Cypress

By LYSLE TOMERLIN

*"Alas for him who never sees
The stars shine through the cypress trees—"*



RENCHED entirely out of its context, and standing alone, these lines of Whittier's poem still have a peculiar significance for anyone who has ever looked up

at the night skies through a misty curtain of intertwining cypress leaves. The majesty of the heavens seems to achieve a new dignity and grandeur by virtue of the serious charm of that lattice-work.

Certainly anyone who has ever been in the South cannot have failed to be impressed by the great expanses of cypress in the lowlands. It is always in the lowlands, or at their edge, that the cypress flourishes; on higher ground where water drains off more freely this beautiful and graceful tree seldom propagates. Wherever water is plentiful, wherever there are swamps, bottoms, or bogs, the cypress with its delicate, fern-like leaves and its polygon-shaped fruit is certain to exist; and in proportion to the amount of water constantly present about the trees is the number of "knees" which will protrude for life-giving air and light.

Peculiarly, the fruit of the cypress grows always about the



Mysterious beauty pervades the home of the cypress in the lowlands of the South. Protruding through the water are its "knees"—through which the trees receive air and light

middle of the length of some frond-like, leaf-bearing twig, just as if it were an excrescence which had formed about the tiny shoot instead of an integral part of it; and the leaves grow on uninterruptedly beyond the fruit to the end of the stem.

When fully ripened, this fruit, commonly known as "cypress-balls," is covered with a sticky, gummy substance which oozes from its angular points. These balls are quite hard, and apparently their only use is for small boys to throw and to get dirty from handling, because the juice from the balls is of the sort that sticks closer than a brother.

The fragrance of cypress is somewhat like that from pine, only less pronounced; and more than likely the fruit of the tree contributes something to the tang of the cypress aroma. The roots which the cypress sends up from the ground are covered with rough, scaling bark much different from that of the tree itself—except for the tops, which are entirely bare and very hard—and actually bear a resemblance to a human knee with the hard, bony knee-cap. At any rate, they are called "cypress knees." Sometimes they attain a growth of ten or even twelve inches in diameter.

When water stands about the base of the cypress and thereby cuts off the fresh air and the sunlight, these knees serve as useful auxiliaries to forage for those items of tree diet. For small boys who wander in the lowland woods in summer, the cypress knees are no end of fun as places to attempt to stand upon with wet feet—and to fall off immediately.

Cypress trees grow as straight as pines and are much like them in texture of wood and relative freedom from low branches. Unlike the pines, cypress sheds its delicate tracery of foliage late in the autumn, the leaves become dry and usually fall off, in complete fern-like arrangements as they grow.

The very profusion of cypress in so many parts of the South caused it to be but little esteemed for a long time, so that land-owners would gladly give the trees to anyone who would go to the trouble to cut them down and remove them from the land. They made good fuel for starting wood fires in winter, but were not suitable for continuous heat, since they burned so rapidly.

However, in more recent years cypress has attained a recognized value which it formerly lacked. The wood makes excellent shingles, and cypress roofing is quite popular. Cypress lumber takes paint well and is used for interior trim, for sheeting, and for purposes requiring durability and resistance to decay. It is frequently specified for porch floors, and is recognized by florists as the most satisfactory wood from which to make work benches. Railroad ties of cypress properly treated are proving reliable and durable. In 1925 the production of cypress lumber exceeded seventy million board feet.

More extensively than in any other way,

perhaps, cypress has come to serve man in constructing piling foundations. Thousands upon thousands of these

southern trees have been shipped into scores of cities of the North and the East for use as bases upon which metropolitan skyscrapers have been erected.

So the once scorned cypress now has a considerable market value. In boom times almost solid trainloads of long, straight piles have been shipped from little southern towns. Sometimes these logs are so long as to require at least two flat-cars coupled together. If time permits, the cypress bark is peeled and the piles seasoned in the sunshine before shipment to increase their lasting qualities. The bark comes off easily; a portion loosened at the larger end of the log will usually strip all the way up.

As they grow old, cypress trees increase more in circumference at the bottom than at the top, creating somewhat the effect of a bulge. It might seem, with poetic license, as if the trees are planting their feet more firmly on the earth while their heads soar towards the clouds.

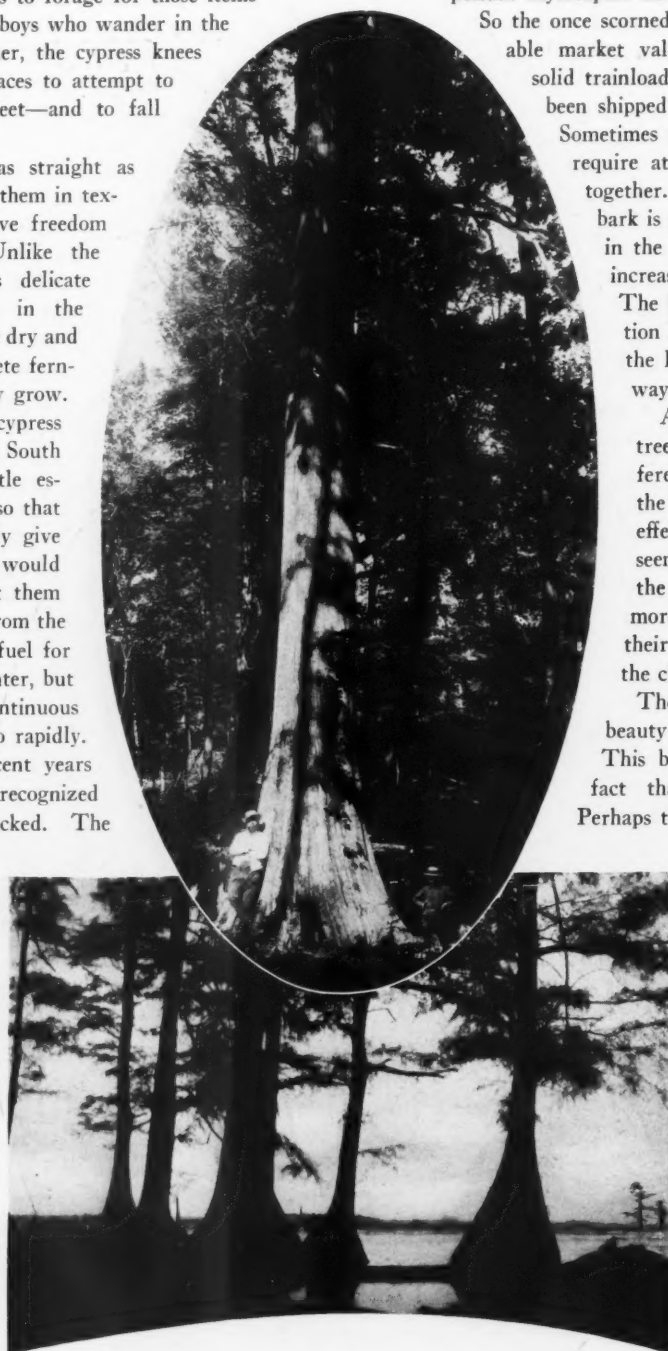
There is a distinctive sort of beauty about the southern cypress. This beauty loses nothing by the fact that it is slightly somber. Perhaps this air of somberness lies in

the point of its growth in greatest abundance where there are bogs, marshes, or fens—away from the hillsides where the sun and the wind create a greater environment of gaiety for the trees which flourish there. At any rate, cypress is impressive in its serenity. In their midst there seems to exist an atmosphere of quietude, a brooding stillness created by no other trees.

A resourceful tree, the cypress has thrived in spots where other trees would drown.

Throughout the South, from the heart of the deepest swamps to the edge of the

ascending uplands, the cypress grows out of unprepossessing murkiness and dampness into symmetry, beauty and utility.



Upper—Bald Cypress growing inland often assumes striking proportions and has splendid form for large park uses

Lower—A definite characteristic of Cypress is the full swelling of the stem at the base of large trees—clearly shown in these trees silhouetted at the edge of the swamp

Rusty and Ben

By Stephen Doering



COLD, wintry night found me billeted with an old trapper. Outside, Jack Frost splashed crazily at the window panes, while the gods of storm thundered their armies against uncomplaining nature. In the peaceful glow of the old trapper's fireplace, I was a thankful

guest. How cosy everything—how expressive of peace. Two large chairs fashioned from splint and thong were most enticing. There were a few well-chosen pictures, and some books of the higher order. Near me lay an open Bible.

On each side of my comfortable chair lay stretched an enormous bear robe. From one, a shimmering brown, three toes were missing from a forefoot. From the other, a glistening jet black, an ear was missing. From the scars, which appeared inflicted by gun or trap, I scented a story.

The dishes put away, the venerable man joined me in a pipe. He did not talk, but sat smoking peacefully. After a second pipe I leaned forward stroking the scar of the missing toes. The old trapper smiled understandingly, his twinkling eyes, his every act a gesture of gentleness.

"I knew them when they were little chaps," he began. "The brown, a she, lived a good and useful life. The black, a male, became an outlaw. In many ways bears are not different from people, for there are good and bad bears just as there are good and bad people.

"Jim Watson was a young man when they were born. Perhaps it was he who made a criminal of the black, just as people sometimes force other people into crime. It was Jim Watson who killed their mother, and fired on the cubs, shooting three toes from one and an ear from the other. But it was nearly dark and they escaped. Jim found their tracks the next morning where they had come back and cuddled through the night against their life-

less mother. They had left before daybreak knowing they were orphans; bears are mighty knowing sometimes.

"But Jim Watson took up their trail; by the law of the range they were his, for he had killed the mother. Far and wide he spread word of the two little bears, and far and wide they became known as Rusty and Ben. And their's was a troubled, harrowed life. Whenever they were seen, word was sent to Jim.

"Wherever they traveled, the nimble, suspicious Ben was in the lead, Rusty limping patiently behind. Hunted relentlessly, their first summer was one of want and struggle. Little Rusty was poor and sick from constant traveling on her injured foot. They were thankful when winter came,

for, hidden deep in the cave where they were born, they slept through the long winter, secure from man.

"Three long years did Jim Watson trail and trap for them without success. Ben, always guiding, always the one with the sharp ears and nose, ever guarded his crippled sister until she was grown. It was always Ben, who, piloting Rusty through endless thickets or swimming rivers, outwitted his crafty enemy. It was Ben who began killing stock that his sister might live.

"When they were three years old they parted company, each seeking a mate. Rusty lived on at the old cave where they were born. Ben went across the range into the Purgatoire, killing, always killing. He hated man, but I think there must always have been innocence and gentleness in his heart just as there is inno-

cence and gentleness in the heart of a man criminal.

"When Rusty and Ben made their last climb to the old cave to say good-by, Jim Watson found their trail fresh in the snow. Relentlessly and quietly he followed, knowing full well where they were going. But the canny Ben, suspecting, doubled back on his trail and watched Jim go past. Jim knew that he was outwitted again and, worn with the day, turned into his blanket for the night under a sheltering



It was always Ben, the aggressor, with his sharp ears and nose, who took the lead, guiding and guarding his crippled sister until she was full grown and able to take care of herself

rock wall. "Snow fell heavily and swirled it about the man's cave. The woods were sternly silent. Soon, gaunt, ghostlike forms were moving, skulking, waiting. An owl screeched dismally. Closer about the cave drew silent, phantom forms.

"Jim Watson never knew what kindly god wakened him. Before he realized it he stood with smoking rifle in hand, watching a monster wolf fall, mortally wounded, among his vicious pack. The man stood riveted to the spot watching the blood-maddened pack tear their leader sinew from sinew. The gleaming fangs of old Lobo, their leader, would no longer command them—there would be a new leader within the moment and they would again encircle the man.

"No wood. Fool!" The man snarled the words at himself. "Then came the woodsman's call to action. Boldly he chanced reaching a dead log from which he might wrench knots for a fire. How futile! Forty pairs of glowing eyes instantly encircled him! It would be a fight to the finish! The man mocked at himself and thought bitterly of the number that would pay the penalty before him, for he never missed what he shot at.

"In the softly falling snow—in black darkness broken only by hideous cries, man, the destroyer, stood at bay. As the night wore on five wolves paid for their rashness as the man's rifle streaked flame, and were torn to bits by their murderous fellows. Minute followed minute. At last the man stood against his stone wall with only a twisted, broken rifle at his feet. In his clenched hand was a glittering knife. And the man bleeding and snarling not unlike the crouching, creeping forms.

"Six—eight—nine—I'll kill!" Defiantly he hurled the words. Then—

"Boldly, there walked into the arena of death a huge, fur-covered form, unafraid, its gleaming tusks bared. Directly behind came another but smaller form. In the circle of glowing eyes they turned, back to back, and faced the pack.

"A gaunt, gray wolf took up the challenge and hurled its body at these new and dreaded invaders. With one thrust the wolf's back was broken and its body cast aside. Battle royal waged between animals of the lower kingdom. Man, the destroyer, was forgotten. Wolf after wolf, a gray streak, shuttled through the snow at the open throats of the challengers. Standing high, the challengers snarled defiance.

Man, the destroyer, was urging, shouting, pleading. He thought not of escape.

"Many against two. The pendulum of victory swung from side to side. When the tide of battle turned against the monarchs, the man would urge and plead. When the back of a wolf was broken he would applaud.

"Twelve, you've killed! Thirteen! Get that one!"

"Slowly a gleam of pink crept up the eastern sky. Broken in number, defeated, the circle of glowing eyes widened and disappeared in the silent wood.

"Rusty and Ben smelled over the ground of battle, their manes standing rigid in final warning to the wolves never to try again. Presently they turned away, Ben breaking snow with his massive breast. Once he turned half about and whooped at the man who stood against a stone wall—a man who was free, but who would never again use gun nor trap against a bear.

"Every spring for many years Rusty tumbled two little cubs, always one black and one brown, into the valley where she taught them wisely in woodcraft. Jim Watson was their sworn friend, and none dared touch them. She lived a gentle, useful life, never harming man nor his property.

"One spring, when she did not come to the valley at the usual time, Jim went to her cave. There he found a strange sight. Old Ben, as he became known in old age, lay dead across the den of his sister, and where he was born. His body was torn and mangled. A few feet from him lay the body of a great mountain lion. Old Ben died as he had lived, a militant, fighting bundle of nerve and sinew. Criminal though he may have been, he never shirked his duty in defense of the weaker.

"Deep in the leaves of the cave Jim found Rusty, peacefully dead from old age. She died as she had lived, at peace with all.

And there were no little cubs; nature had told her to bring no more, as her frugal life would soon finish.

"Jim Watson kept their furs and buried them together in the old cave."

My venerable friend arose and banked the fire for the night. True to his kind he had skillfully drawn a veil about the climax of his story—it lacked some final touch. Stroking the beautiful fur of Old Ben I asked: "And Jim Watson, what of him?"

The old fellow chuckled and smiled over the glowing coals: "I am Jim Watson," he said.



Boldly the huge, fur-covered figure walked into the arena of death—into that circle of glowing eyes—then turned, to face the pack



E. L. Crandall

*In the Christmas Greens Market—Ground Pine by the Yard and Holly Wreaths
Gay with Red Berries Fresh from the Woods!*

Keeping Christmas Green

BY P. L. RICKER

President of the National Wild Flower Preservation Society



HERE are many extremists who would absolutely forbid the use of some of our disappearing Christmas greens, but to most people imbued with the real Yule-tide spirit, Christmas without the liberal use of greens loses half of its attractiveness.

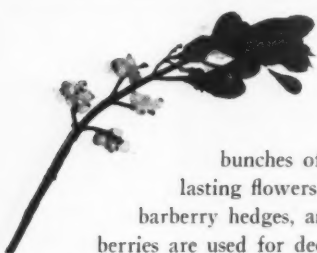
While millions of Christmas trees are cut every year, billions of seed of pines, fir and spruce are being sown naturally and by foresters, and as long as seed of these trees is available for planting there is bound to be a sufficient supply of trees for all time. Many abuses in the cutting are found, but these will gradually be corrected. The greatest problem is presented by the attractive crowfoot, ground pine, club moss, or trailing evergreen as it is variously called.

Pulling up its long runners is destroying it rapidly, and thus far it has defied all efforts at vegetative propagation and its growth from the spores in its long slender cone-like fruiting bodies is very slow. Under natural conditions very few of the spores, probably not more than one in 100,000, ever completely mature even if they begin to germinate, due largely to unfavorable weather conditions, or to insects and small animals. Few plants produce such an abundance of reproductive bodies. Under laboratory conditions a greater number of the spores might survive if this were commercially feasible.

In the meantime the artificial preservation of ground pine in chains and wreaths seems to be the best means of retarding the destruction of these plants. Several firms are now doing this preserving on a large



At the right and left are shown typical Western Christmas greens. Left—A wreath of Holly-leaved Cherry made gay with Toyon berries; and, Right—A beautiful wreath of Redwood foliage—both from California. Above, in the center, is an attractive artificial wreath of the type urged for use in order to conserve the source of our fresh woods greenery



bunches of red and green dyed everlasting flowers, red berries from Japanese barberry hedges, and bunches of artificial red berries are used for decorating the wreaths. The Christmas markets now also abound in large and small, more or less attractively decorated artificial red wreaths made of fibrous material called "friz," and the use of these in the home, and for public decorative use is widespread.

Since mistletoe is a parasite and injurious to the trees on which it grows, valid objections to its unlimited use can hardly be offered. Very large quantities of it rarely appear in the market as its collecting is often difficult on account of the height at which it usually grows on its host. It is much more abundant in the southern States than in those of its northern limit which ranges from New Jersey to Ohio. A small mistletoe, of neither sentimental or decorative value is found only in the north-eastern States and adjoining parts of Canada. It is also probable that the mistletoe would yield fairly readily to cultivation if such a contingency ever seemed desirable. While the eastern States are fairly progressive in many matters, those of the extreme northwest, particularly Oregon and Washington, have taken the lead in preserving the rapidly vanishing Holly. Several large farms in these two States are entirely devoted to the cultivation of the English Holly which may only be readily distinguished from its native American cousin by a slightly larger leaf, and the upper surface is glossy instead of dull as in the American form. Its seed is said to germinate in about eight months, with only one winter in the ground instead of two winters, or sixteen to seventeen months re-

scale. The material remains pliable for several years and may even be fireproofed if desired. Ribbons,

quired for the native American seed.

The cultivated northwestern English Holly is now said to be shipped in large quantities over most of the western half to two-thirds of the United States and it is probably only a matter of a few years when it will be a serious competitor of the eastern supply. While the two northwestern States are ideally situated, as to climatic conditions, for the cultivation of the English Holly, there is no reason why it should not succeed equally well in some of the middle eastern States.

Redwood, extensively used for wreaths in the West, is found only in a narrow belt along the Pacific coast. More extensive replanting must be done if the supply is to last. Oregon grape, a kind of barberry found in the Pacific coast mountains, is a low spreading bush used for wreaths. It is the State flower of Oregon.

Toyon, or Christmas berry, is a native of the California mountain slopes and is extensively used for wreaths. Its red berries are also used to decorate wreaths made of other evergreens. Although cultivated to some extent, cultivation should be practiced more broadly if it is long to survive.

There is a State law for its protection. Salal, a shrubby evergreen of the redwood belt, coast huckleberry and holly-leaved cherry are used to some extent, but they are found in more or less impenetrable thickets and are in little danger of extermination at present.

One of the most difficult problems in keeping our Christmas woods green has been the habit—more or less prevalent—of unauthorized removal. The State of California has joined with others in enacting protective legislation. If such laws require that cutting shall be done only by the owner, or with his written consent, much vandalism of this sort will be prevented.



Another beautiful type of artificial wreath for Yule-tide



E. L. Crandall

The Ground Pine at Home—Nearby grows the Christmas Fern in abundance, almost always companioned by the shy and lovely *Arbutus*. Why destroy such a picture for a few hours' pleasure?

The Sport of Kings

By MABEL GILLESPIE



AVE you ever heard the musicians at a band concert singing a hunting song while echoing bugle calls sounded from opposite sides of the park? Perhaps, then, you have strained in imaginary stirrups at the thought of whirring wings overhead in the dim dawn while a phantom falcon on your wrist stirs impatiently, waiting its release. Perhaps you imagine a dream existence of long ago when you were a knight of old England, a prince of Arabia, or a lord of Egypt, riding forth with an aristocrat of the air perched upon your arm. And now you sigh for the romance of those days that are gone!

The falcons are not gone, however, and they are as romantic today as they were when the pyramids were built or the walls of Troy laid low. To be sure, any attempt to revive the falconry of old would require for its success a return to the manners and customs of those far-away days. The alternative is to modernize falconry, and this, some of us have discovered, can be done. Our modern version lacks the cruelty and destructiveness of the old-



N. J. McDonald

An immature osprey—undoubtedly dreaming of adventurous flights into the unknown to rival those of Lindbergh.

time sport, and brings us, instead of captured game, unexpected serials of winged adventure as romantic as anything that happened centuries ago.

There is nothing assured or stereotyped about this new sport. It is at best a mighty lottery, depending on the whims of weather, geography, bird psychology, and human habits. In order to play the game you must be able to catch a falcon alive and tag it. But you do not wait for the bird to tag you in return; rather you try to tag it again or wait until someone else does it for you. The tactics of the saltcellar are humorously inadequate in dealing with the lords of the air, and all your ingenuity and imagination are needed to play successfully.

A group of us who have become enthusiastic falconers of the twentieth century go forth armed with cameras and field glasses for weapons and numbered aluminum bands bearing the direction "Notify Biological Survey" for ammunition. Our most successful method of catching falcons, or, in modern terms, hawks, has been through enlisting the cooperation of farmers. This may at first seem a contradictory impossibility, for farmers are not apt to be friendly toward hawks nor inclined to view them through romantically colored binoculars. The farmer is earning a part of his livelihood through poultry raising, and blames the hawks

for the frequent tragedies of the chicken yard. Sometimes hawks are to blame. But not always. Most of the farmers know this, but they are too busy to wait with loaded guns for the sly, swift accipiters, and, therefore, set traps that will catch any hawk, or, for that matter, any owl or beneficial song bird.

The usual method of capture is by a steel snap-trap that ordinarily does not injure a bird. We have persuaded a number of farmers to notify us when they have captured hawks, and we promise to take them far away before releasing them. Sometimes these steel traps are fastened at the tops of poles, and a hawk thus caught dangles in the air, struggling for freedom. We have tried to discourage this practice since it is cruel and incidentally spoils our chances of recruiting new falcons. If a farmer feels that he must place his traps on poles, it is possible to arrange them so that they will drop to

the ground after a bird is caught. My latest recruit to the ranks of falconers' associates comes from a region where the buzzard is common enough to be protected, and it is the custom in his community to use a double compartment trap with a bird for bait in one side and an automatic arrangement on the other side which imprisons the unwary bird of prey. Then if a beneficial bird is caught it can be released unharmed to continue its flight.

There were several contributing reasons for the invention of this sport of ours. In the first place, there was a deep concern about the fate of the lords of the air. Since propaganda is unpopular and therefore not very effective, we sought for a better way to persuade farmers to spare the least destructive hawks. We

knew the results of the investigation made by the Biological Survey, which showed that the hawks most frequently trapped seldom take poultry and are very beneficial because of the large numbers of destructive rodents they devour. But lists of stomach contents are not apt to prove best sellers among farmers. On the other hand, they are interested just through curiosity to see what we are up to, and though they probably consider us harmless fools who might as well be humored in our lunacy, it is not long before they are interested in spite of themselves.

When we had reached the point of salvaging miscellaneous hawks, it was but natural that we should feel a particular interest in each individual and wish to know, if possible, what happened to it after we released it. So the next step in the game was to band the birds. And then, while we had them in our hands, there was an unequalled opportunity for study of plumage and general appearance. If you have ever tried to identify hawks as they soar on high, and have found that most of the distinctive markings are on the upper part of the bird and out of sight,

you will understand how we welcomed such possibilities of establishing new methods of field identification.

The hawks most frequently trapped are the *buteos*, including red-shouldered and red-tailed hawks. Both feed on rodents, reptiles, and insects; and, in the words of the captain of the *Pinafore*, they "never, no never, well, hardly ever," take a chicken, although they have mistakenly and undeservedly won the title of "chickenhawk." Other varieties are caught less frequently, though we have seen the varying results of efficient trapping nailed on many a barn door. In one collection there were three red-tailed hawks, four red-shouldered hawks, one Cooper's hawk, three marsh hawks, two long-eared owls, and one short-eared owl. Of all this company, the Cooper's hawk was probably the one and only chicken thief, and most of the others were supposedly protected by law.

One farmer became so interested in our activities that he drove forty miles or more one bitterly cold day, bringing with him to our home three handsome red-tailed hawks. No innovation in the neighborhood has so successfully attracted attention as these falcons, which spent the day tethered on our lawn. One was an adult with red tail and very light breast and under-wing feathers. The second was an imma-



Henry R. Carey



John A. Gillespie

The release—Letting him go to unknown adventure through the skies has all the romance of Noah sending forth the dove from the Ark. The insert above shows the banding of an immature red-tailed hawk

ture bird with dark tail, large dark spots on the white breast and belly, and markings on the under-wings darker than those of the adult. The third was very dark below, representing an unusual "dark phase," and had a mixture of red and dark tail feathers. Late in the afternoon the birds were released and sailed regally away. A notification from

the Biological Survey reported the shooting of the immature bird a few days later, but our hopes are for longer life and successful adventure for the other two.

I have been tempted at times to try taming a red-tailed hawk, but I always come to the conclusion that the bird would lose its charm with its wildness. Thoreau, who understood nature better than do most of us, wrote: "The unsympathizing man regards the wildness of some animals, their strangeness to him, as a sin, as if all their virtue consisted in their tamableness. He always has a charge in his gun ready for their extermination. What we call wildness is a civilization other than our own. The hen hawk will not consent to walk in the barnyard, but it loves to soar above the clouds. It has its own way and is beautiful, when we would fain subject it to our will. So any surpassing work of art is strange and wild to the mass of men, as is genius itself."

We do not, of course, need to depend on the cooperation of farmers, apart from our hope of winning some tolerance for the lords

of the air. Under favorable circumstances we could do our own trapping. In fact, we do not always need traps for our modern falconry. A very successful method of indulging in this sport is to seek the nests of hawks and band the fledglings before they start out into the world. This may involve climbing tall trees or clinging to the sides of precipitous crags, but persons often travel round the world in search of adventure no more thrilling. This is about the only way to catch alive either of

the most romantic members of the falcon world—the eagle, falcon of kings, and the peregrine, king of falcons.

The case of these two magnificent falcons is more difficult to defend than that of the buteos. They will, undeniably, take chickens and other game. But they are too noble to be exterminated. And the evidence all suggests that they are judged guilty more often than the facts warrant.

In the days of falconry the eagle might be carried by emperors only, and its regal associations have persisted from the dim haze of distant eras to the time of its installment as our national emblem. But we have lost the ancient respect for its magnificence, and an observer from Mars might suspect us of thinking that it will be more expressive as a symbol when its last living representative has followed the great auk and the passenger pigeon into an already well popu-

lated animal Valhalla. There is a tremendous opportunity for some falconers, who are enthusiastic enough to band the eagle in its aerie, to thus persuade a thoughtless citizenry that it is quite as consistent with democratic principles to further a closer association with kings as to kill them.

The fearless peregrine must chafe under the indignity of the plebeian name "duck hawk" which our generation has given it. Its European cousin was, in olden times, carried to the hunt only by members of the nobility, and it is the noblest of all the falcons. Ospreys will sometimes band together to war against an eagle, but no bird dares oppose the peregrine. It will even visit cities, bringing with it to the overcivilized and jaded atmosphere of the modern metropolis a hint of the unspoiled wilderness and the freedom of fearless nature.

Our most spectacular adventure in falconry offers proof conclusive that falcons are often misjudged.

It had its start in a nesting colony of ospreys or fish hawks. These

birds, fortunately, are protected in many seacoast localities,

and are encouraged to return to the same nests year after year. Some of our falconers banded fledglings in their nests on the southern coast of New Jersey during the summer. Six weeks after banding, one of these birds was shot not far from Charleston, West Virginia, three hundred and eighty miles distant, and the number on the band was reported to the Biological Survey. It was later revealed that the man who killed it believed it to be an eagle preying upon his chickens,

although it developed that no one had actually seen the bird plunder the chicken yard.

A fish hawk is, of course, quite a different bird from an eagle, though no less a naturalist than Thoreau sometimes confused the two. Although the fish hawk is white below and a bit smaller, the whiteness of its head might easily suggest the bald eagle. But while the eagle feeds largely on fish, the osprey does so exclusively, and never, never takes chickens. So that the bird shot for an eagle, but actually an osprey, could not possibly have been disturbing chickens, though that was the reason given for destroying it. Another osprey, banded as a fledgling on the New Jersey coast, traveled to the mountains of West Virginia, where it was shot thirteen weeks after banding.

(Continuing on page 748)



John A. Gillespie

After the release—The adult red-tailed hawk, tasting once more the joys of freedom, about to take flight.



EDITORIAL

Gambling With Fire

"THOSE of us who have faced the red enemy of forest fire on the National Forests year after year have had it burned into our very beings that if the protection of these great public forests is to be placed upon a sound foundation, the owners of these properties—the American public, through its agent, the Congress of the United States—must provide their managers with a complete and modern fire fighting plant."

Thus writes no less an authority than Colonel William B. Greeley, former Chief of the United States Forest Service, whose article elsewhere in this issue is a serious indictment of the Federal Government's parsimony in providing fire protection for the National Forests. The single sentence quoted states the case and the remedy with a clearness and finality that cannot fail to arrest the attention of every American who feels pride of ownership in the greatest forest property under public administration in the entire world.

Colonel Greeley knows whereof he speaks. Back of his statement is a quarter of a century of fire-bathed experience—first, as forest supervisor in the West, then as district forester of the worst fire district in the country, and finally, as head of the entire Forest Service, where for almost ten years he was commander-in-chief of the Government's fire fighting army. No man has studied the fire fighting problem of the National Forests more soberly than he, or knows it more intimately. He speaks not as head of the Forest Service, for he resigned that position several months ago, but as a private citizen whose knowledge and appreciation of the Federal forests as a national asset transcends that of the average citizen.

The fundamental weakness of the Government policy, as pointed out by Colonel Greeley, is the steadfast refusal of Congress to appropriate enough money to provide a

modern and fully equipped fire fighting organization. And this in the face of the certainty that as sure as summers come the enemy fire will strike. Every year Uncle Sam's fire fighters must go into battle handicapped by inadequate equipment and plant organization. The annual appropriations for fire protection have been insufficient to permit the Forest Service to build up a fire protection plant that will give its fire prevention forces an even break with the enemy. Today, the National Forests are short ten thousand miles of telephone lines, three hundred lookout houses, as many lookout towers and much other equipment absolutely essential to preparedness against fire. After twenty years of experience, study, planning and taking the measure of forest fire, Congress continues to gamble with this enemy. And gambling with the hundreds and thousands of fires which threaten and attack the National Forests every year is nothing less than gambling with the National Forests themselves.

Congress is not ignorant of the situation. Colonel Greeley, during the years he was Forester, and his predecessors in office, repeatedly urged upon committees of both the Senate and House the need of larger appropriations for the protection of the forests from fire. Vast losses in timber and other forest resources occurring in abnormal fire years have repeatedly driven home the inadequacy of the National Forests' protection plant and the false economy of attempting to save money by taking chances with an enemy whose regularity of attack and power of destruction is known.

The National Forests are the American people's greatest undertaking in forestry and conservation. If Congress continues unwilling to provide full and complete fire protection, then public forestry in the United States eventually must fail. The time has come for the American people to take this vitally important situation in hand.

Training Men In Forestry

FORESTS constitute one of our greatest national resources. Sudden realization that they are approximately half gone has brought also recognition of the fact that they have been treated like ore bodies to be mined instead of as crops to be grown.

It has also been discovered that as an applied science forestry is exceptionally backward. This is due in part to the fact that trees have a growing period extending over a term longer than a human generation. This has prevented application of practical and scientific methods generally in use

in agriculture. Within the past few years there has been an unexampled development of knowledge relating to the science and art of forestry. The Government Forest Service, the great forestry organizations, the lumbermen's organizations, the National Chamber of Commerce, and the National Academy of Sciences have supported intensive studies of the scientific and research aspects of the subject and of its practical application. The result has been a rapid advance of knowledge.

In attempting to utilize our new knowledge of forestry we discover today that one of the greatest needs is for thoroughly trained men to take up the forestry program which seems essential for future development. At this stage it has become apparent that trained men do not exist in numbers or with the range of training required. It is apparent that the educational phase has advanced only as a by-product of other studies, and the weak place at this critical moment is in our understanding of the best method of development of the educational program.

Dean Henry S. Graves, Head of the Forestry School at Yale University, has assisted in several of the most important studies made, especially that conducted by the National Academy of Sciences. As a part of his work he has accumu-

lated a large body of information, both in this country and abroad, which he is now attempting to have used as a basis for a further constructive study of the program of forest education in this country. The Society of American Foresters has heartily endorsed Dean Graves' undertaking and upon his recommendation has made the study a special project of the Society, appointing a committee of representative foresters to sponsor the investigation if resources can be secured to carry it on. The Society is endeavoring to obtain the sum of \$30,000 for this critical aspect of the educational work in forestry. Various forestry schools and other organizations of the country are interested in the project and are prepared to lend it their hearty cooperation. It is important that this study be carried forward rapidly with an attempt to make it as thoroughly scientific and as fully practicable as possible.

The gap to be filled by completion of this aspect of the great national program in forestry represents one of the largest opportunities for important and definite accomplishment in the field of education, as well as in furtherance of scientific and practical study in this great division of applied biology.

Solving the Recreation Problem

ANYONE who has followed the astounding spread of outdoor recreation during the past decade cannot fail to appreciate its growing importance as a new factor in the administration of Federal lands. Last year over twenty million people—almost one-fifth of the population of the country—made recreational use of the National Forests and Parks. So rapid has been the increase in popularity of these Federal reservations that the agencies responsible for their administration are today sorely tried to know how best to meet the intricate and diversified problems which the new movement is creating. Established ideas of land use are being subjected to strain under the pressure of recreational demands and the task of orderly and wisely coordinating recreation with the other activities of the Federal forests and parks, so that their primary purposes may not be interfered with, is becoming increasingly complicated.

There is no avoiding the problem. The National Parks and Forests are the property of the people and as long as they continue to be the best outdoor country in the nation the public will demand that their recreational resources be open to use. Nor should the Federal Government want to thwart this use, because the movement is one that makes for the greater health, happiness, and spiritual development of its people. But physical recreation is not the primary function of either the National Forests or the National Parks and its growing demands should not be permitted to destroy the economic purposes of the Forests or the inspirational and educational purposes of the Parks. The only course open is to meet the problem in a constructive way and the immediate task of the Government, so far as Federal lands are concerned, is to define as clearly and soundly as possible the principles which should govern the use and development of

the forests and parks for recreation. This is by no means an easy task or one that can be done hastily. Sound principles which will stand the test of years and the vastly greater demands of the future can be arrived at only by careful and exhaustive studies of the recreational functions of the parks and forests in relation to their primary and other uses.

It is gratifying that both the Forest Service and the Park Service are proceeding along this line. Last spring, Secretary Jardine appointed an Advisory Committee to assist in determining a policy for the Mount Hood area in the Mount Hood National Forest, Oregon. The committee recently submitted its recommendations and while the Secretary accepted some of them he felt compelled, pending further study, to withhold action on the broader aspects of the Mount Hood problem and the proposal to build a tramway to the summit of the mountain.

"We are dealing with one of the great landmarks of the continent," the Secretary declared. "Development of its full public value would be jeopardized unless accomplished under a harmonious plan and with a long look ahead. . . . Above all, there is need to bring to bear the best expert advice and judgment that can be obtained."

In creating a committee to study special problems of Yosemite, the National Park Service is following an equally judicious course. The American Forestry Association views these studies as constructive and timely, and expressive of a desire on the part of the two departments to utilize these properties in the best possible way. It believes that only through such studies will it be possible to establish clear and sound definitions of the recreational functions of the National Parks and Forests.

Today's Forests for Today's Coal

By THOMAS H. WITTKORN

FEW people realize the dependence of coal mining upon the present-day forests. The vast majority of people who burn coal regard the two things as in different classes, their interest limited to the cost of the heat they will produce in the fireplace or furnace. To the men who get the coal out of the ground, however, it is a serious question. The miners look upon it as a matter of life or death and the coal operators regard it in the light of profit or loss.

The anthracite coal mines of Pennsylvania consume about 500,000,000 board feet of rough timber each year in ties, mine props and buildings. Operators place that cost at about seventy cents for each ton mined. "Timbering," as it is called, must be continually carried on in the mines by a gang of men skilled in this work, so that those who work below the surface will be protected from falling rock and slides in the tunnels. It is faith in the strength of the timbers going into the underground passages which send the miners to their hazardous daily task with little or no thought of fear.

In recent years the demand for mine props, the small logs used for "timbering," has far outgrown the local supply and the forests of the Pacific Coast have been called upon to help supply the Pennsylvania collieries. However, the farmers who live in the wooded mountainous country surrounding the Pennsylvania

mines reap the greatest benefit for the continual call for props. In years past the specifications for acceptable props were more rigid than they are now, when some of the mines will accept props as small as six inches in diameter. Any of the native trees, except basswood, are acceptable at lengths of from twelve to twenty feet, and need not be squared at the butt.

Surrounding the mining town of Forest City, Susquehanna County, Pennsylv-

ania, there are approximately one hundred farmers who make good money each year from their woodlots, hauling the young trees to the mines. They hurry through their harvest so as to spend the late summer and fall cutting and hauling props. The only equipment they need is a strong



Harvey Dann, the champion prop hauler, with a load of 350 linear feet of mine props. Any native tree except basswood is acceptable for this use



The farmers of Susquehanna County are making good money from their woodlots. This shows one of the mine woodyards, containing 700,000 linear feet of props for the anthracite mines

arm and sharp ax in addition to a team of horses and a wagon. Indeed the work is so simple that it is customary in that locality when one wants to express his opinion of a "bonehead," to say, "He is too dumb to cut props."

The champion prop hauler of that territory is undoubtedly Harvey Dann. He has the record of cutting and delivering in three months 22,000 linear feet for which he received \$1,125. Each load of 350 linear feet of six-inch props brought him \$19.25. His farm is not far from a mine woodyard so that he can cut and deliver a load a day besides doing his regular farm chores.

The Forestry Extension Department of the Pennsylvania State College is taking an active interest in the problems of the mine-prop-producing counties of the State. Working with the county agricultural agents, it has held a number of demonstrations to show the owners how they can have a yearly crop from their woodlots. In many cases the farmers are following these instructions and taking extra care of their woodlots, as they find the products have a ready market and never fail to pay the expenses of growing and harvesting.

Progress of the Southern Educational Project

FOLLOWING in the wake of the hurricane of late September the men of the Southern Educational Project have been steadily at work. Their reports indicate that each educational unit is reaching more than a thousand people every week. During the period from September 18 to October 27 the men with the five trucks had reached a total of 41,445 people, of whom more than one-half were children. This is an average of nearly 7,000 people a week who are learning about the advantages of a forest kept free from fires.

Teamwork is the keynote of the entire activity. The unit director and the motion-picture operator work together almost as one. Responsibility for preliminary contacts and for arranging the itinerary rests with the unit director. Proceeding ahead of the truck, he arranges cooperation with the County Superintendent of Schools and with the County Agricultural Agent. Wherever there is a state forest officer his help is secured. Following a few days behind the unit director, taking full advantage of his publicity, comes the truck, loaded with equipment for showing the pictures and with pamphlets to leave with the people.

Detailed itineraries for the motion pictures are made out at least a week in advance. Copies of these go to the operator of the truck, to the State Forester, to the State College of Agriculture, and to the Regional Director. Thus is assured the fullest cooperation with local representatives of the interested state organizations.

By the first of November the trucks had been in twelve counties in the three states. As far as possible work has been arranged in the hill regions before the winter rains set in. William R. Dunlap and J. B. Toler started in Tishomingo County, Mississippi. This is up in the clay hills in the northeastern corner of the state, where short-leaf pine grows in mixture with oaks and hickories. The itinerary has carried them west through Alcorn, Union, Tippah, and Benton Counties.

Just what may be expected from a woodlot producing props over a period of years is pointed out by Professor C. R. Anderson, of the State College. Twelve years ago on one fifty-acre tract all of the trees large enough for props were cut, and since then the present owner has cut 100,000 linear feet and there are now 10,000 linear feet ready for cutting. This means an annual production of 9,167 linear feet which would bring the farmer a little over five hundred dollars. Considering that this comes from land which will not produce the ordinary farm crops at a profit it makes a nice sum to add to the farm income.

According to the checker at the mine wood yard, the loads brought in by the farmers vary from 225 to 400 linear feet and they receive from twelve to twenty dollars for them. Some men come fifteen miles with a load, but this is about the limit for a round trip in a day with a pair of horses. One man has been hauling to the yards for twenty-seven years, so the work cannot be considered new, although its possibilities have not been fully appreciated by all of the men living in the hard-coal field who are able to take advantage of them.

Except for a few showings in the neighborhood of Waycross, the two Georgia trucks have used the good fall weather to cover some of the northern and central counties. C. Bernard Beale, unit director, and R. R. Ozmer, lecturer and motion-picture operator, conducted their first programs in mountainous north Georgia. Occasional white pines from the north venture this far south to grow among short-leaf pine, southern red oak, and Carolina hemlock. J. B. Gaskins and W. O. Young started just where the Piedmont breaks into the Coastal Plain, where the short-leaf pine and hardwoods come down to meet the slash pine. From the town of Jackson, in Butts County, they have been working south and east.

In Florida, Earl T. Taylor and Jack Thurmond started in Suwanee County in north central Florida, where Spanish moss drapes the live oak trees, and where slash pine and long-leaf pine are being operated for turpentine and rosin. E. P. Simmons is devoting special attention to state and county fairs.

The Southern Educational Project of The American Forestry Association has been built with full assurance of the cooperation of the State Foresters of Georgia, Florida, and Mississippi and of the United States Forest Service. That cooperation has been unstinted and has been augmented with help from the State Forestry Associations, the State Colleges of Agriculture, and the State Departments of Education. But the test of cooperation comes when jobs are put up to the local representatives. Reports coming into Regional Director McCormick's office in Thomasville all show the finest cooperation on the part of everyone. So many people interested in the program lending their efforts to make it a success gives assurance that the South will take pride in keeping fire out of the woods.

When Win



—H. Armstrong Roberts

Following the Huskies, the King of Winter Sports in the North

Right—Before the Descent, Looking Down on the Long, Unbroken Trail.



—Rob

"Is"



—Canadian Pacific Railway



—Walter R. Merryman

Over the Hill and Far Away Go the Old-fashioned Sleighbags, to the Merry Tune of Sleigh Bells.

With Winter in the North
an instinctive urge to meet the
less snows and frigid winds. So
behind a team of faithful huskies
uncertain, ever luring the trail
Winter on skis, snowshoes and
others follow the ancient call of
bells, while in the deep woods
forest, the hearty woodman da

Winter Comes



—Roberts



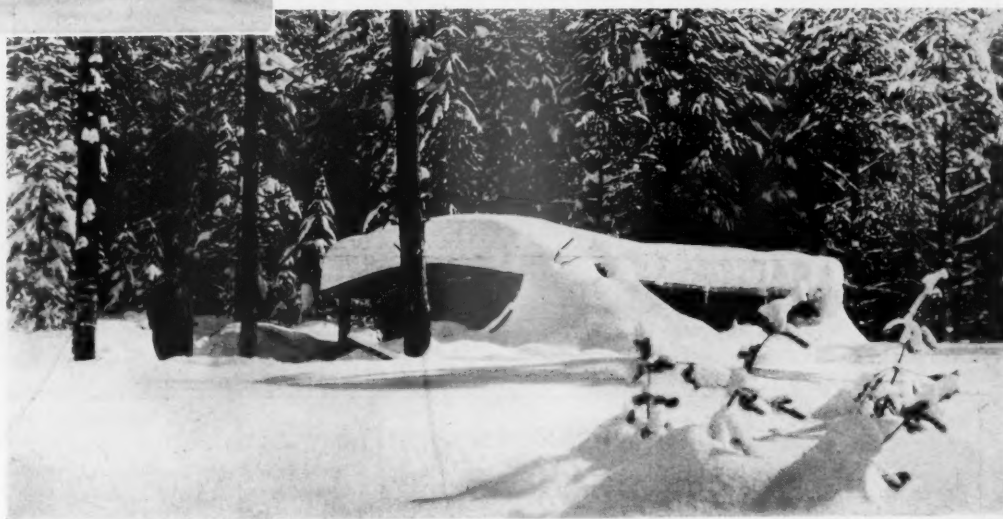
—H. Armstrong Roberts



—H. Armstrong Roberts

A Breathing Spell on the White Trail, Amid the Grandeur of Winter.

Left—A Sure Cure for Humdrum, Riding the Billowy, White Drifts.



—United States Forest Service

Snowbound, not an Unusual Experience for the Woodsman in the Great Forests of the North Country.

The Tree That Would Not Die

By FRANK THONE



BALD cypress tree stands on the campus of St. Benedict's College at Atchison, Kansas. To all appearances there is nothing especially remarkable about it; it looks like just another thrifty, well-grown young tree such as might adorn a college campus or public park anywhere. But it has a past, a very literally buried past. It is a tree with a history—one might fairly say it is a tree with an archæology.

The story of this cypress was told me ten or twelve years ago by the good Father Boniface, who was a Kansas pioneer, as well as a monk and a professor and a naturalist of the old school—he is lying quietly now beside the other founders of the college on the high crest of a cedar-crowned bluff that looks toward the sunrise over the Missouri River lowlands.

A good many years since, when Father Boniface was a young man, he planted a little cypress half way down the slope of a deep ravine on the then new campus. It took hold and grew well, and the young professor was proud of his tree, for in those days a bald cypress in that part of Kansas was a far-brought rarity.

St. Benedict's thrived, and new building became necessary. The operations involved a partial filling of the ravine, and

when the work was completed more than half the cypress was buried in the new-made land. That, thought Father Boniface sorrowfully, is the end of my cypress.

Not so. Though reduced apparently to sapling size, it grew on as vigorously as a sapling, and after a lapse of another stretch of years was once more a strong and thrifty tree, thirty feet tall.

Again, new building became necessary, and again earth was dumped into the ravine, this time filling it up level and burying a good half of the tree's new height. Once more Father Boniface mourned his cypress as dead, but once more it surprised him and all the brethren by staying alive and growing on ahead as though nothing had happened. To see this tall, healthy, well-shaped tree standing by the monastery wall now, one would never suspect that its trunk runs downward through the earth for thirty feet or more.

Father Boniface taught his last class and said his last mass five years ago come Christmas, but his twice-buried and twice-revived tree bids fair to outlast even the straight iron cross they have set at the head of his grave. And not even he, obedient and faithful son of the Church



The bald Cypress stands beside the Monastery walls at St. Benedict's College in Indiana—a tree with a buried past

though he was, ever affirmed with more marked emphasis the ancient words of the Creed—*Exspecto Resurrectionem!*

In this Magazine Thirty Years Ago

"The forest fires in northern Minnesota and Wisconsin have resulted in the destruction of countless numbers of birds. They have been seen in great abundance on Lake Superior, the steamer Yukon recently arriving in Duluth with six hawks perched in the rigging. The birds were too exhausted to fly farther and had apparently taken refuge on the vessel to escape drowning in the lake. In many cases helpless birds were seen floating in the water, which, on the approach of the vessel, attempted to rise and fly to it for security."

Using All but the Whispers of the Pines

By C. L. HAMILTON

MILLIONAIRES are seldom wasters. In his genial moods, the senior Mr. Rockefeller passes out dimes rather freely. But no one ever heard of his scattering bank-notes of large denomination indiscriminately.

His son is known in philanthropic circles as John D. Rockefeller, Jr., Incorporated. He has applied the scientific methods of modern business to his charities, in order to prevent waste. Name whatever men of great wealth you may; you will not find among them one who has a record of wanton waste in handling money. Doubtless it is because rich men know the value of riches that they are conservators of wealth.

Perhaps for parallel reasons, much of the constructive work in forest-conservation that is being done by our generation has its initiative in the lumber industry itself. The layman has little reason to appreciate fully the value of forests:

Company, the by-products division of the Weyerhaeuser group, has developed forest utilization to a point where it may almost be said that everything is used but the whispers of the pines.

Everyone familiar with lumbering remembers how the rivers in lumber regions formerly were clogged with waste from the sawmill's. The nuisance became so bad that laws were passed preventing dumping "hog feed" into the water. These laws did not reduce the fundamental waste, however, for giant metal incinerators reared their screened heads beside every mill and belched flames night and day as they consumed what was regarded as necessary waste material. The fire served no useful purpose except to get the scrap out of the way. There is a waste-burner at Cloquet which used to glow with a fire that never died out. But some years ago that glow became spasmodic, and then merely occasional.



In this plant of the Wood Conversion Company at Cloquet is seen a monument to forest conservation—the obsolete waste burner standing idly in the background, for the "waste" that used to feed its almost constant fire is now being converted through modern methods into useful wood products.

so he is prone to carelessness in his attitude toward growing trees and in his use of forest products. But the lumberman has a capacity for visualizing a forest fire in terms of families deprived of homes; a heap of slashings waiting for the match in terms of possible manufactured commodities thrown away, the "hog feed" that travels up the conveyor to the mill burner in terms of possible commercial values. This vision provides the incentive to real conservation.

Nowhere is this better illustrated than at Cloquet, Minnesota—one of the many manufacturing points of the Weyerhaeuser affiliated companies. Here the Wood Conversion

Today it is visible only at rare intervals. The rest of the time the giant cylinder stands cold and dark, a not-particularly-beautiful monument to the achievements of science in the prevention of forest waste.

The Weyerhaeuser sawmills at Cloquet produce from 100,000,000 to 150,000,000 feet of lumber annually. There is a lot of scrap from so much lumber, and the waste-burner was well fed at first. But someone conceived the idea of making boxes out of short-length boards that were going into the waste burner. A factory was set up that now uses pieces down to 3 inches wide and 12 inches long.

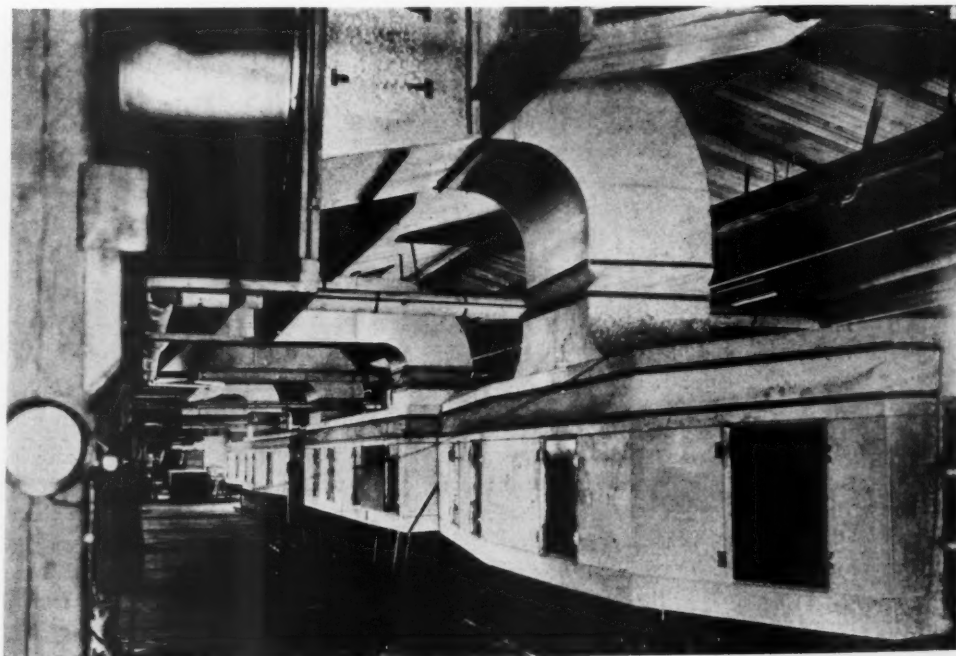


This giant roll contains one thousand square feet of wood wool. It is the first strip produced at the new Cloquet factory and the largest strip ever produced in one piece

ing a new process by which trees of almost no commercial value could be transformed into a high-grade paper, a new paper mill was built which made it possible to save better woods for more important purposes.

All these activities used up a great deal of low-grade and waste wood, but there remained some "hog feed" for which no use seemed to exist. Though on short rations, the waste-burner still smoked occasionally. But the lack of employment for this remaining scrap did not daunt the Weyerhaeuser technicians. If there were no uses

Then another factory was built to make grain and coal doors from low-grade lumber. A toothpick factory followed and this factory alone is now using annually 2,000,000 feet of white birch in its daily output of 62,000,000 toothpicks, 500,000 throat swabs, 400,000 clothespins and 250,000 tongue-depressors. Still another mill was erected to use ungainly odds and ends from the mills in the making of paper roll cores, paper frames and other small wooden articles. And then, utiliz-



Unique in design and operation, these great dryers expel the remaining superfluous moisture from re-manufactured wood, drying the product by means of steam-heated metal plates which iron it with a motion quite like that of an ordinary flatiron

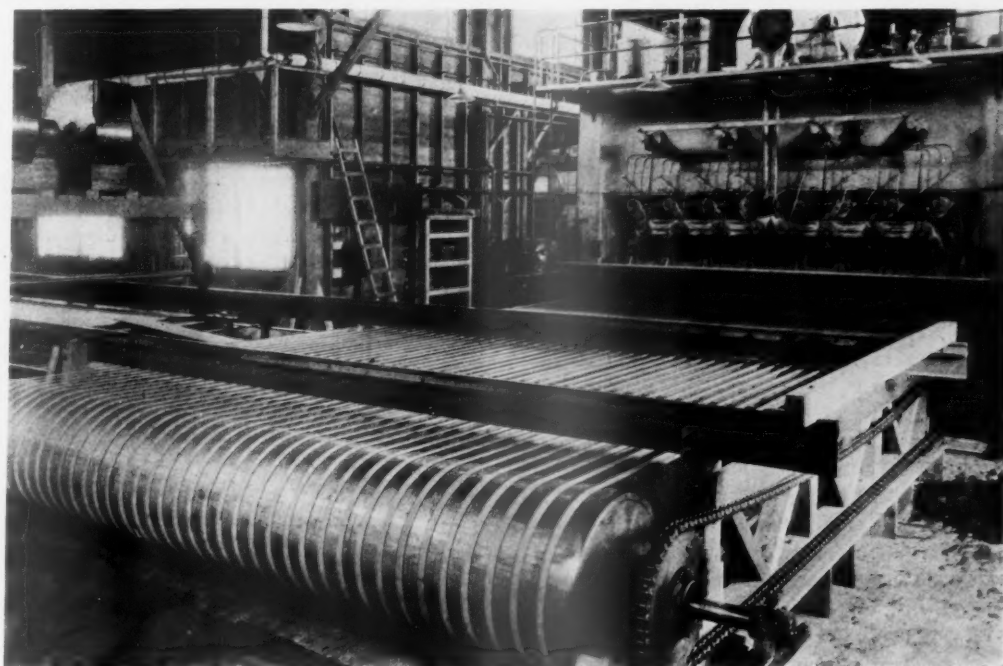
for it, they would create them. Analysis showed that the essential qualities of the waste were equal to those of the best logs. The only handicaps were the shape and size of the pieces. The technical men evolved a method of shredding this wood into fibers and then building these into a mat that resembled sheep's wool in appearance and had just about the same insulating

properties. Recognizing the value of a product that would shut out cold and keep in heat, or vice versa, the Wood Conversion Company made this wood wool into blankets by placing it between two layers of stout waterproof paper. In this form it was found especially valuable because, being flexible,

it could be tucked into out-of-the-way places in building construction. The name "Balsam Wool" was given to it, and when it was put on the market through lumber trade channels its success was immediate. Another development in waste-wood utilization soon followed. The flexible blanket

did not fill the need for a material with structural qualities as well as insulating value. Architects often specify rigid insulating materials for plastic base, paneling, roof-deck construction and like uses, so the company spent several years in research to

(Continuing on page 748)



A mammoth press, one of the most powerful machines in any American wood factory, and especially employed in the manufacture of wood waste into a useful product. It expels water from the pulp and converts it into boards, pressing the fibers together in all directions



The main auditorium of the new Armory at Duluth, Minnesota, in which the new product serves three purposes: those of heat insulation, acoustical correction, and attractive finish, not to overlook the conservation of resources covered by all three



The Birds' Christmas Tree

By Lisabel Gay

One sunshiny, cold Christmas' morning
Three children, just bubbling with fun,
Spied a Christmas tree out in the garden,
That glistened and shone in the sun.
How they laughed at the queer decorations,
For dangling or tied—plain to see,
Were all foods the winter birds fancy—
So, of course, 'twas a birds' Christmas tree!

As they watched came a flock of gray juncos,
And the children just shouted with glee
When a wee feathered songster flashed downward
With a sweet, merry chick-a-dee-dee!
"Merry Christmas! you dear little birdies!
There are sunflower seeds for you all,
Good suet for the nuthatches,
And the woodpeckers too, when they call."

There were doughnuts and cookies and peanuts,
Crispy toast for the blue-jays to eat.
Tree sparrows in brownish-red bonnets
Gaily scratched the hay chaff with both feet.
How they gossiped, and gobbled and twittered,
And fluttered and trilled over head,
E'en the cross bill, whose beak became twisted
Pulling nails from the Cross—so 'tis said.

The house sparrow and the bright starling
Showed their company manners so fine,
And tho' the squirrels stole a few peanuts
They were graciously asked to dine.
All day the birds merrily feasted
Till the dusk sent the sun to the west,
And three sleepy but happy small kiddies
To their beds, for a long night of rest.



Taming the Christmas Tree

(Continued from page 721)

spruces, Douglas, white and balsam firs. In some southern states, where the red cedar grows better than other conifers, this species has been planted.

But king of all Christmas trees is the Norway spruce. It has a wide climatic range and will flourish in almost any situation except very wet or dry soils or heavy clay. It is a fairly rapid grower and almost free of insect and fungus pests. The foliage is rich and the branches stand out well from the main stem in symmetrical whorls, making a beautiful tree. An additional advantage is that it stands considerable shade, and is thus adapted to close planting and as a filler in plantations of other species, grown for timber. These bushy little evergreens throw a dense shade, which tends to keep the earth moist and free of weeds and to make the timber trees grow straight. It grows well in the East and Middle West, from Massachusetts and Vermont southward as far as South Carolina and Georgia and westward to Kansas and Nebraska. The white spruce is more suitable for planting in the extreme North while, in the South, red cedar and balsam will flourish. The native habitat of the Douglas fir is the West. It ranges from Washington to southern California, through Nevada, Idaho and Utah, but it is being grown successfully in the east for the Christmas trade.

Those planning to go into the Christmas tree business on an extensive scale may find it profitable to plant several species. William G. Kohout, who is a pioneer in the industry, having started his plantation, near Reading, Pennsylvania, in 1915, has found that individual tastes differ and that styles in Christmas trees may even change from one year to the next.

"Last year," he stated, "there was a great demand for red pine, white pine and especially for Scotch pine. I sold lots of them by thinning out the young stands. The year before the people were crazy for red cedar and this year I already have a few orders for 'Chinese Civita' and hemlock. In 1929 I suppose they will demand 'Mugho pine' or 'creeping junipers' or the 'Jiminy spruce,' as a couple of fellows wanted last year. I can't give you the botanical name for 'Jiminy spruce,' but I presume it would give a botanist sleepless nights to find out what species of spruce this is."

For the small grower, who would have a Christmas tree corner in his woodlands, the use of good sturdy transplants seems advisable. They cost a little more, but the likelihood of loss is diminished; they will be ready for the market sooner and require less care. Transplants four years old, usually a little more than a foot high, are best. They will take hold readily and begin to show substantial growth the first year. Planted from seed, the Norway spruce grows only a few inches the first two or three years, and, after that, at the rate of about a foot a year. Spring is the best time to set out the transplants. Growth will be more rapid if the ground is first prepared as for an ordinary field crop. The ground should be plowed in the fall and disked and

(Continuing on page 766)

Seed Gathering in Minnesota's Pines

Men, Women and Children Comb the Innermost Haunts of America's Last Great Stand of Norway and White Pine for Seed

By HOWARD HOPKINS

ALMOST everyone has at one time or another enjoyed the sport of searching for walnuts, chestnuts, or even Easter eggs. Very few people, however, know that almost similar hunts are staged in the woods of northern Minnesota practically every fall, and that the searchers are paid for their sport. The idea of receiving good wages for a day's hunt for nuts, or, in the case of northern Minnesota for pine cones, seems to require a stretching of the imagination for those unfamiliar with the necessity of gathering pine seed for our future forests.

The call for Norway and white pine seed to restore to forest land great areas in the eastern United States last year sent hundreds of people into the Chippewa National Forest to gather cones from which seed may be extracted. Over the entire 190,000 acres of a forest famed for its stands of Norway and white pine, men, women and children combed the innermost haunts of nature for the precious cones. For these the United States Forest Service was willing to pay from \$1.50 to \$2.00 a bushel for Norway pine and from \$1.00 to \$1.50 a bushel for white pine cones. In fact, so many people were lured into the hunt, including many Indians, that a new industry was born and bids fair to flourish in

future years. There are three methods of gathering pine cones in the Minnesota woods. First, climbing the trees and picking the cones from the branches, collecting them in a bag swung over the back; second, by gathering the cones

scattered on the ground; and third by allowing the red squirrels to do the gathering and then robbing the "squirrel hordes" along fallen logs and at the base of stumps. Often well over a bushel of cones are hidden in one spot by the red squirrels. Each method of gathering has its own devotees.

The energetic man's choice is collecting the cones from the trees. For this purpose a short ladder is carried to reach the lowest limbs and from then on up the collector climbs out to the tips of the branches gathering all cones within reach. One can find numerous old automobiles rambling around the woods with one end of a ladder projecting from the front and one end stretching out in the rear while the gatherers scan the forest for good "seed trees." It might be noted that only the white hunters use this method, the Indians always preferring the ground. Two men can gather eight bushels of Norway pine cones a day by this method.

The lazy man's choice is to confine his efforts to locating and collecting



Among Minnesota's Virgin Pines—From these tree cones were gathered to furnish seed for the forests of the future

cones stored by the red squirrels for the winter's food supply. This consists of poking into likely spots, such as under stumps and along fallen logs, and gathering the cones in batches after the squirrels have done the work. One of the advantages of this method is that one can always take long rests sitting on the ground under pretext of watching the squirrels to locate more of their hiding places. This method is especially liked and adopted by the buck Indians.

Scouting over the ground collecting cones under the pine trees is the general method, used especially by children, who join in the hunt in great numbers. It is no uncommon sight on the Chippewa Forest to see a large buck Indian sitting on the ground supposedly watching the squirrels while the squaw and about ten of their offspring cover

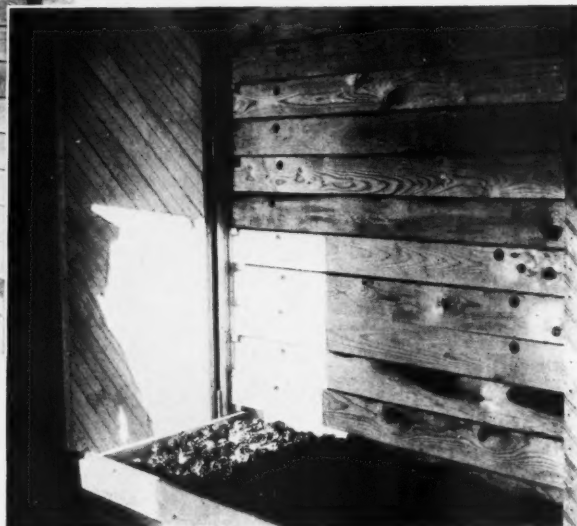
tober 10, 1927, until April 25, 1928, when the extraction was completed. The plant consists of a small building housing a large open air furnace over which is a kiln with forty-eight trays, each with a capacity of about one-half a bushel of green cones. The lower trays naturally receive the most heat and the process is to fill the trays at the top, moving them down nearer the fire as the lower trays are emptied.

After the cones in the lower trays open they are removed and placed in a large revolving drum, where the seed still clinging in the cone is shaken out. The empty cones are then used for fuel. On the twenty-four-hour shift a four-man crew will extract an average of thirty-four pounds of seed from sixty bushels of cones.

Heat in the kiln is kept at from 150 to 170 degrees for the lower trays. Sufficient ventilation is necessary as it has been found that the cones are opened by allowing a constant flow of hot air to pass by them rather than heating them to intense temperatures without ventilation. That is, the



A view of the cone kiln in the Cass Lake Nursery. Above the open-air furnace is a kiln with 48 trays, each holding one-half bushel of green cones. Opening in the heat, the seed is shaken from them. The picture to the right shows a lower tray pulled open to expose the expanding cones



ten or twelve acres. Even the five-year-old may be seen staggering along dragging a battered pail as large as himself to gather cones for the family supply. By this method one man will average two bushels a day of Norway pine cones with a return of about \$4.00.

During the fall of 1927 a total of 8,254 bushels of Norway pine cones and 581 bushels of white pine cones were purchased by the Forest Service within or near the Chippewa National Forest at an average price of \$1.75 a bushel for the Norway, and \$1.25 a bushel for the white pine cones. This means that more than \$15,000 was spent in the community to reward the work of the cone pickers, mostly Indians.

When the cones are collected and stored in the warehouses at the Forest Service nursery at Cass Lake, seed extraction begins. This plant, with a four-man shift, was operated night and day, with the exception of Sundays, from Oc-

cones open by drying out rather than by heating.

The result of this new industry, or sport, in Minnesota may be seen in the 4,637 pounds of Norway pine seed and the 300 pounds of white pine seed extracted by the Forest Service in 1927 from cones supplied by these forest hunters. Norway pine cones yield about nine ounces of clean seed per bushel, while the yield of white pine is about ten ounces. Of the total amount of seed extracted about 880 pounds will be used for planting in the National Forests while the Government will furnish the States with 4,057 pounds at a cost of \$5.00 a pound. Commercial concerns today often sell Norway pine seed at from \$15 to \$20 a pound.

The amount of seed collected on the Chippewa National Forest last fall will enable the raising for planting of 123,425,000 seedlings and the planting of 154,000 acres of land of which about 27,500 acres will be planted in the National Forests and 126,500 acres in the eastern States.



At Manzano the old orchard that named a National Forest still bravely holds its own. Planted at the little Spanish Mission centuries ago, the great old trees, despite lack of care and protection, are still fruitful

The Fruit That Named a Forest

By ALBERT DICKENS

A LITTLE orchard of seedling apple trees was planted at a Spanish mission centuries ago. As the orchard grew and flourished and came into bearing, its fame was so great that the mission, the land grant, and a mountain peak were identified with it. They were all called *Manzano*, the Spanish word for apple tree. After the centuries have passed and the mission has been almost forgotten, the United States Forest Service used *Manzano* as the name of one of the National Forests.

This orchard is still the feature of a little village fifty miles southeast of Albuquerque, New Mexico. Gnarled and twisted by the storms of winter and winds of summer, bearing great scars witnessing the lack of protection from bark-loving animals, the trees still bear fruit.

A large spring rolls up from beneath a ledge of rock and eddies about in a bowl thirty feet wide, worn in the ledge. From this rickety flume-spout pours a stream which spreads a ward wide on its way to the first reservoir pond. The old apple trees have the first water right and the subsoil of gravel drains away the surplus. An old ditch bank has held the wash from the hills, so that new soil has fed them.

The goddess of chance evidently ruled the production of the seed the old missionaries planted, for there is a marked difference in the time of ripening, color, and flavor of the fruit. It is inferior to our modern varieties, to be sure, but very good to eat. From early summer until late fall, when the last apples are picked to save them from freezing, the old orchard is the playground of children and the resting place for their elders.

Deep worn paths from all parts of Manzano village center at the old orchard. The trees were planted much more thickly than a modern orchardist would plant them, and their tops form a continuous canopy. There is shade throughout the insect pests that worry the modern orchard man. The very fact that the fruit is quickly consumed is its protection. If a careless boy should throw an apple at a pilfering goat, the animal promptly eats it. No apples lie on the ground. If a heavy wind brings down more than the children can use, the matron's apron carries them home and a tray of drying out the day for the appreciative patrons of the orchard.

apples appears on a rack out of reach of burro, goat, or small I could find no codling moth, apple maggot, or any of



A close-up of the veteran apple trees, showing the great trunks, gnarled and twisted. Note the clump habit of growth, which is characteristic of the orchard

boy. The oldest man in the village says the trees have not grown much since he can remember, and his grandfather said the same to him.

The trees have had little pruning, but no sign of canker or wood rot is to be seen. Their troubles have been from bark-eating animals. One of the trees, with barely a third of its trunk circumference growing bark, has thick ridges of recovery tissue supporting a very large portion of the original top. With such evidence of health and vigor, one hesitates to answer the villager's query, "How big do they get before they begin to die?" Until that day comes, the natives of this village, founded around the quaint Spanish mission of centuries ago, will enjoy, as their ancestors have, the fruit from the gnarled and twisted ancient trees—the fruit of Manzano.

Conservation Bills Pending in the Seventieth Congress

When the Seventieth Congress reconvenes on December 3 for its second session it will find a large number of conservation bills still in the legislative hopper. These are measures which were introduced last winter during the first session and which failed to advance to passage. Among the number are relatively few which are considered major conservation measures in the sense that they establish broad national conservation policies.

In the latter category, however, the Migratory Bird Conservation Act is considered of first importance. The turbulent history of this legislation is well known, since the bill in one form or another has been before Congress for the past six years. Introduced last winter by Senator Norbeck, the bill (S. 1271) was passed by

the Senate after several radical amendments, chief of which changed the method of financing from a license tax upon hunters to a direct appropriation by Congress. The purpose of the bill is to provide a national system of permanent sanctuaries for water fowl and the appropriation authorized for carrying out the program is \$1,000,000.

This bill will come before the House for early action and prospects for its passage are considered favorable. United support of the various wild life groups is assured by the recent organization of the National Committee on Wild Life Legislation, of which Dr. T. Gilbert Pearson, President of the National Association of Audubon Societies, is Chairman.

Forestry

In the field of forestry the legislation of chief interest is embodied in Senator Shipstead's bill (S. 3913) which is designed to safeguard the Superior National Forest in Minnesota for recreation and to protect the wilderness region along the international boundary in Minnesota from destruction by water-power development. The bill would withdraw from entry all public lands in Cook, Lake and St. Louis counties; conserve for recreational use the shores of the thousands of lakes within the region controlled by the government and forbid the alteration of the natural water level of any lake or stream within the area designated, except by special act of Congress. During the summer, committees of both the Senate and House visited the region and studied the situation on the ground, and it is expected that the measure will receive attention early in the session.

The Robinson-Wingo bill (S. 675 and H. R. 5729) is still pending, it having failed of passage last winter. The bill seeks to create a National Park from lands within the Ouachita National

Forest in Arkansas. It was the subject of hearings by the Senate and House Committees on Public Lands last winter and was vigorously opposed by supporters of both the National Forests and the National Parks. The opposition was on the grounds that the region is not sufficiently outstanding scenically or otherwise to qualify as a National Park property and to so include it would establish a policy equally destructive to the National Parks and the National Forests.

Although a number of bills relating to grazing on the National Forests are still pending in Congress, it remains to be seen whether any of these will be pushed for passage during the coming session. Chief among these grazing bills are Senator Smoot's measure (S. 1969) and Senator Phipps bill (S. 2328). Both measures seek to establish definite legal procedure for the handling of grazing on the National Forests. Another pending bill (S. 2329), also introduced by Senator Phipps, provides for the regulation of grazing on the public domain.

Two bills are pending that seek to amend the Clarke-McNary Act. One, introduced by Senator Oddie (S. 1344), would extend the scope of Section 4 of the act to permit the federal government to distribute planting stock to states, municipalities and owners of forest land. Section 4 now limits the distribution of planting stock to farmers only. The bill was passed by the Senate but was not reported out of the House Committee on Agriculture. The other amendment is incorporated in two bills in the Senate which are identical. They are S. 3292, introduced by Senator Ransdell, and S. 3303, introduced by Senator McNary. The amendment would add a new section to the Clarke-McNary Act to be known as Sec-

tion 5a. It would authorize the federal government, through the Secretary of Agriculture, to cooperate with states and other agencies or individuals in promoting and encouraging the practice of forestry upon private forest lands. The amendment would authorize an appropriation of \$100,000 to carry on the work. Hearings on these bills have not been held either by the House or the Senate.

In addition to the foregoing, there are several bills still pending providing for land exchanges and alterations of the boundaries of a number of National Forests.

Wild Life

While the Migratory Bird Conservation Act stands as the most important pending legislation in the field of wild life, a number of other measures remain to be acted upon by this Congress. There is Senator Robinson's bill which would authorize game refuges within any of the National Forests upon consent of the state in which the forest is located. This bill (S. 2456) passed the Senate but was not acted upon by the House committee.

The Curtis-Hope bill (S. 4153 and H. R. 7361), authorizing an

appropriation of \$350,000 to purchase and maintain a waterfowl refuge of twenty thousand acres in west central Kansas, was not acted upon by either house. Neither did Congress take any action on the elk refuge bill (H. R. 478) introduced by Congressman Winter to provide an appropriation of \$275,000 to purchase land in Jackson Hole, Wyoming, for winter range for the Yellowstone elk. The appropriation which this bill would authorize would be contingent upon an equal sum being raised by private contribution.

National Parks

According to the National Parks Association, the coming session of Congress will either stabilize National Park standards by settling Congressional conceptions of the National Park system or it will leave the future development of the system in grave doubt. This statement is based upon the effort made last session to create the Ouachita National Park in Arkansas and upon the many bills now pending in Congress which would create National Parks in various sections of the country from areas which are held by many to be unqualified for National Park status. The list of these bills, as given by the National Parks Association, is as follows:

Roosevelt National Park, North Dakota. (S. 4171 and H. R. 298.) Senator Nye and Representative Sinclair. Badlands and ranches, largely state and private. Reported below standard by National Park Service.

Killdeer National Park, North Dakota. (S. 4172 and H. R. 299.) Senator Nye and Representative Sinclair. Low mountains and badlands, largely state and private. Reported below standard by National Park Service.

Katahdin National Park, Maine. (H. R. 430.) Representative Hersey. Lands partly private and partly National Forest. Primitive wilderness.

Ouachita (Mena in Senate) National Park, Arkansas. (S. 675 and H. R. 5729.) Senator Robinson and Representative Wingo. Low mountains covered with cut-over forests in Ouachita National Forest. Bill opposed by Agriculture and Interior Departments, National Forest and National Park Services. Far below National Park standards.

For a National Park Game Preserve and Refuge in National Forest of Georgia. (H. R. 6033.) Representative Bell. No definite area named, the object being to get a nationally supported income-making reservation for the state.

For an investigation to secure southern Appalachian lands "for perpetual preservation as a national park." (H. R. Res. 72.) Representative Bell.

For a Forestry Experiment Station and National Park at Old Stockade, Jenkins County, Georgia. (H. R. 6977.) Representative Edwards. Another indirect bid for a Georgia National Park. Referred to Committee on Agriculture.

Kendrick National Park, Wyoming. (S. 2570.) Senator Norbeck of South Dakota. To make a separate National Park of the Teton Mountain part of the additions to Yellowstone National Park recommended in the Interior Department bill of 1925 for reorganization of Yellowstone boundaries. Standard quality.

Grand Coulee National Park, Washington. (S. 1599.) Senator

Jones. Lacks National Parks standards. Has been introduced before.

Ponce de Leon National Park, Florida. (S. 2740.) Senator Trammell. Anywhere in Florida. Opposed by Secretary of Interior because definite area not specified.

Silver Creek Falls National Park, Oregon. (S. 3396, H. R. 9771 and H. R. 10086.) Senator McNary and Representative Hawley. Adversely reported because too small and with too many private holdings.

Shepherd of the Hills National Park, Missouri. (H. R. 11477.) Representative Fullbright. Includes much farming land and state land. Reported below standard by National Park Service.

Teton National Park, South Dakota. (S. 4385.) Senator Norbeck. Passed without examination fifteen days after bill was introduced. Reported below standard by National Park Service.

In addition to the above, Representative Berger of Wisconsin, the Socialist member, introduced H. R. 12631 to establish a National Forest and National Park in every state. All of the above bills were referred to Public Lands Committees except those also naming National Forests, which were sent to the Committee on Agriculture.

A National Park measure which has been hotly contested is H. R. 17, introduced by Representative Smith of Idaho, which provides for a reorganization of the boundaries of Yellowstone National Park. The particular feature of the bill which has been vigorously attacked is that which would eliminate Bechler Basin from the southwest corner of the Park.

The Capper-Zihlman bill (S. 1280 and H. R. 5760) seeks to create the Great Falls Park on the Potomac River just above Washington. This is a pending measure which unquestionably will occupy Congress during the coming session. The bill would authorize the federal government to purchase the lands lying along the Potomac River in Virginia and Maryland from the Key Bridge to Great Falls to be preserved as an area of "outstanding grandeur, scenic beauty, biological, scientific and historic interest."

The fact that this section of the Potomac River is included in an application for electric power development raises the clear-cut issue as to whether the region shall be devoted to park purposes or developed along lines of industrial use. That Congress recognizes the importance of this situation is shown by the fact that it passed a resolution last session to prevent the Power Commission from issuing a preliminary permit during the recess of Congress. The purpose of this resolution was to give Congress an opportunity to study the whole situation before taking final action.

Using All But the Whispers of the Pines

(Continued from page 741)

find methods and machinery for making a rigid insulator. Instead of shredding the wood waste, a plan was evolved whereby the "hog feed" is cut into chips and cooked under pressure until the ligneous matter that holds the fibers together is softened sufficiently to allow them to be separated, but the cooking is not carried to the point where this ligneous matter is dissolved out, as is the case in paper-making. Next, the cooked chips are run through disintegrating machines of special design, in which they are rolled between revolving plates with an action similar to that of rolling a match under one's foot. This separates the tiny wood fibers one from another, and transforms the chips into fibrous pulp. When this has been sized to make it waterproof, it is formed into a thick layer and placed in a press weighing more than 200 tons, which reduces it to board form under a pressure of over 2,000,000 pounds. This board passes between steam-heated plates in a dryer, from which it issues as an absolutely flat sheet, with a uniform thickness of a half inch. The panels, four feet wide, are cut into standard

lengths of from six to twelve feet, and wrapped with heavy paper, six in a package, which keeps them fresh and clean until used. This product was christened Nu-Wood because it is actually re-manufactured wood. The fibers that compose it point lengthwise, crosswise and at all angles, thus preventing undue expansion in any one direction when damp, and reducing the tendency to warp, swell or buckle to a minimum. Nu-Wood is filled with innumerable air cells which give it high efficiency as an insulator, but being rigid and consequently denser, it has not the heat resisting properties of the blanket insulator. No rigid substances can be as effective for this purpose as a flexible product. The surface texture of the board is such that it takes ordinary paints and plastic paints readily, and likewise forms an unusually strong bond with plaster.

The big waste-burner, which might be called a symbol of the old days in lumbering, is now practically idle. And scrap lumber that once traveled into its flaming maw now travels in railroad cars in highly useful manufactured form.

Meeting the Red Menace

(Continued from page 714)

Forests and in its cooperative relations with States and private land owners. It is planting trees, purchasing forest lands, aiding State and private protection from fire, conducting forest research, and building highways—and the total appropriations are liberal.

From my own experience as head of the Forest Service, I sympathize with the controlling powers in the pressure they are under to do many things at once, and in the difficulty, facing so many deeds and opportunities, of determining how to make the dollars available count for the most telling results in the long run. The building of a great structure of public forestry is a long task. There is a natural desire

to progress at once in its many component parts, where much obviously should be done. From my own contact with these problems, I realize how we may fail to concentrate the maximum effort upon the parts of the whole which the lengthening years of experience have shown to be most vital to the soundness of the structure in the long run.

This plea for a speedy completion of the essential protection plant on the National Forests is born from sober experience. It is vital to the success of public forestry. It is one of the things that must be done—even if other developments, however desirable in themselves and however appealing to public interests, have to wait.

The Sport of Kings

(Continued from page 731)

A wise osprey, it seems, would stay on the Atlantic coast, where the shooting hazards are negligible.

The following incident was reported by Dr. E. H. Forbush in the *Massachusetts Monthly Bulletin*: "An interesting story appears in a Nova Scotia paper to the effect that Angus McGillvray shot what was thought to be an eagle. The bird later came into the hands of a taxidermist, who advised the owner that it was the 'European green plover,' and that in the taxidermist's opinion it was the first ever known in Nova Scotia. Comment is unnecessary." If there is a possible explanation of such a mistake, it is worthy of first prize in an alibi contest.

Propaganda, as already suggested, is not overwhelmingly successful in any attempt to preserve wild life. But when the exploits of our banded falcons possess sufficient news value for the columns of the press, we may hope to arouse

some interest in them through the romantic unexpectedness of their wanderings. And if one ever participates in the excitement of this sport, he will be completely won to its twentieth century modifications.

There were four things which the ancient writer of proverbs claimed were too wonderful for him, and one of these was the way of an eagle in the air. Centuries have passed and invention has produced the airplane, and yet the way of a mighty bird is still wonderful to man. I know of no more thrilling experience than to send forth from your hand out into the unknown a magnificent falcon to adventure for you and reveal to you its romance. And though the kings of the nations are passing, the kings of the air are not exterminated yet; and if the enthusiasm of the modern falconers becomes at all epidemic, the falcons may be spared for endless life and adventure.



Those who have visited... South Africa

realize full well that it is not a country of steaming jungles, naked savages, and the last lair of big game.

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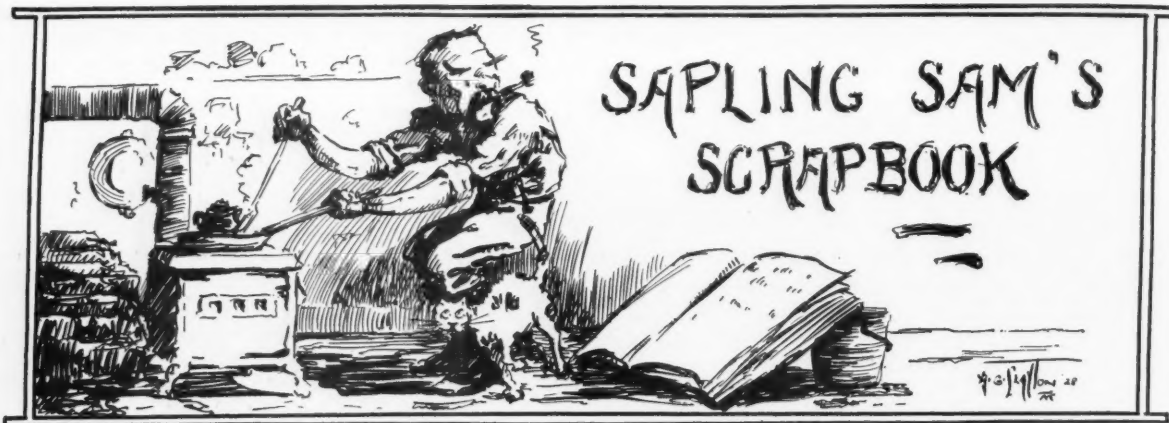
Beautiful Botanical Gardens; Primeval Forests; Miles of Verdant Veld; Towering Mountains.

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Should Have Rained on Thirteenth

ONE by one the superstitions of our fathers are being established as sound facts, according to the *Forest Service Bulletin* of the Southwest District.

Regard for the moon at the time of planting is no longer sneered at by the juvenile because science has demonstrated that polarized light has a stimulating effect on the growth of living organisms. Other superstitions are sure to be placed as valid facts as the progress of science goes on.

On July 19 the vindication of another superstitious claim took place on the Jornada Range Reserve. During the afternoon of this day, Mr. Waggoner, the co-operator, and Mr. Jim Walk, the ranch foreman, killed a snake. Mr. Walk threw it

in the air in such a manner that the snake fell to the ground with its belly turned up. Mr. Walk observed this good omen, looked at the cloudless sky and the drought-stricken mesa. With a knowing smile he then predicted rain before nightfall. At 7:05 p. m. of the same day Mr. Walk's prediction was validated as a fact. The Jornada and surrounding region received a gully washer which soon tapered off into a satisfying drizzle that boosted the precipitation record at the Jornada Range Reserve Headquarters 0.46 of an inch.

The use of the snake in producing rain has long been practiced by certain Indian tribes of the Southwest. Should some bespectacled scientist catalog and publish the facts regarding the rain producing possibilities of the snake, it is feared that the country will be beset with floods and the reptile population face extermination if unregulated use of the snake for this purpose is permitted.

About Dogs

You've heard of that dog out in California that always chased the panther over the county line so he could tree him in a county where they paid a bounty? No? And the one that blew on the chair to cool it off, so his master wouldn't know he'd been sleeping in the chair against orders? Yes? Well, the *London Morning Post* passes this one on:

"A gentleman had a dog whose eyes were remarkably different in size. Whenever a stranger dined at the house the dog played a trick on him. He would first get fed at one side of the guest, and then go around the table to his other side, and pretend to be another dog!"

Quite So

*Of all the glad surprises,
There's nothing to compare
With treading in the darkness
On a snake that isn't there.*

Early Efforts at Research

The New England Council released a yarn recently about a Rumford Chemical Works in Rhode Island finding out that by-products of phosphoric acid production could be made into excellent building blocks. Here's something funny about that. Years ago when we always connected the words "Rumford" and "phosphoric acid" with baking powder, a ranger I know used to use the stuff to make biscuit. One day he was away and I tried it and what I produced would have beat any of these later building blocks to death. Which reminds me of some pancakes we made once on the Lassen National Forest; used 'em for stove lids for a week—then had to throw 'em away because they warped.

Getting Close to Nature

ROOMMATE WANTED—Make your selection from the best grade of trees, plants, and shrubs. Franklin Ave. Nursery Yards.—*Literary Digest*.

Hope We Don't Feel Hurt!

The *California Foresters* goes in for some heavy analysis and comes out with this:

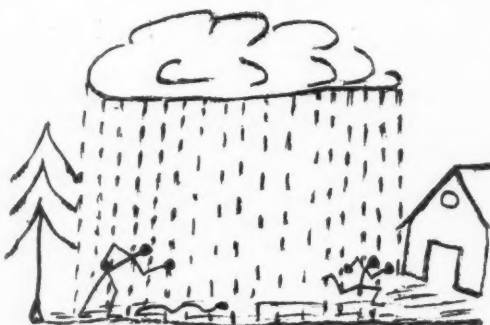
A specialist: One who knows less and less about more and more.
A high-brow: One whose knowledge exceeds his intelligence.
A practical man: One who practices the mistakes of his ancestors.
An expert: Just an ordinary guy a long way from home.

Strawberries With Maple Sugar

A fruit grower at Paw Paw has a "strawberry tree" four feet tall, says a Michigan paper. Some day yet my dream of being lost in a strawberry forest may come true.

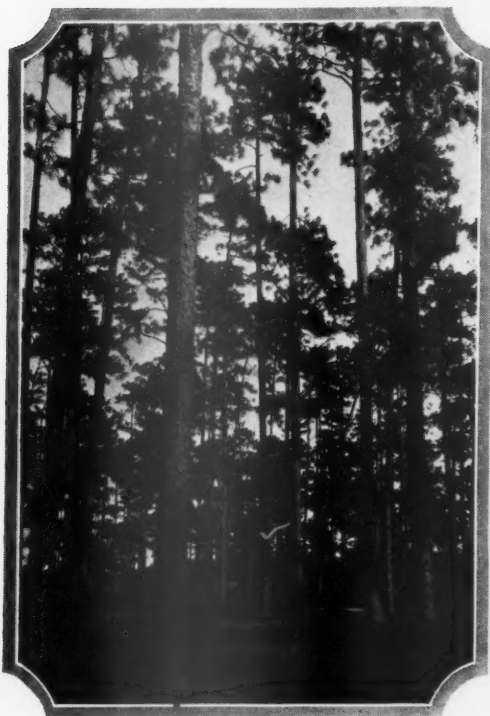
Tiring of Wild Life

India, at least, is going Democratic, declares the *Detroit News*. Although a land of elephants, it has ordered a shipment of 648 South Dakota mules.





Early morning at Magnolia Farm. Jerseys going out to cultivated pastures that are green and luxuriant practically the year round.



A bit of the Old South's Virgin Pine Forests—160 acres of original growth have been preserved near farm headquarters.

Magnolia Farm Is Now For Sale

The 1,400-acre demonstration Stock, Dairy and General Farm of what was formerly one of the South's largest lumbering concerns. The Company has cut over and sold off practically all of the 400,000 acres originally owned by it and is now selling Magnolia Farm (preparatory to final liquidation) at probably less than 50% of its actual sound value.

Is fenced and cross-fenced, complete and modern buildings and equipment, 211 head of Registered Jerseys including much of the best Jersey blood in U. S.; sheep, hogs and chickens; pecans, Satsuma oranges, figs, blueberries, etc.

Location

In Baldwin County, Alabama, 18 miles northwest of Pensacola, Florida; 35 miles east of Mobile, Alabama. Two miles from the Frisco System's New Extension to the Gulf of Mexico at Pensacola, Florida.



In the Milk Barn. All set for one of Pensacola's Luncheon Clubs—not a fly or offensive odor.

The present Jersey Herd Sires include: A son of Oxford You'll Do, a son of Flora's Queen's Raleigh, out of Raleigh's Eminent Buttercup, and a son of Darling's Gallant Boy, out of Lady's Silken Glow.

Several of the Herd Matrons were sired by our former bull, The Owl's Noble Duke, a son of Noble of Oaklands.

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Ideal From Every Standpoint as

A STOCK FARM

A CITY DAIRY

A GENERAL FARM

A BEAUTIFUL SOUTHERN ESTATE

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AROUND THE STATES



Reorganization of Conservation Department Asked in Minnesota

Recommending a sweeping reorganization of the State Conservation Department, the Minnesota Reforestation Commission, of which Lieutenant Governor W. I. Nolan is chairman, and which was appointed two years ago to formulate a program of forestry legislation, submitted its report November 12. Under the reorganized department, the commission would place direction of all natural resources, including forests, mines, state lands, game and fish, drainage and waters. Control of state timber lands and timber sales would be transferred from the State Auditor to Division of Forestry in the new department.

Under the commission's recommendations 4,000,000 acres of delinquent tax lands suitable for forestry would revert to the public domain with absolute ownership by the state, which already owns 2,000,000 acres. Lands classified as forest lands would be set aside as forest reserves, managed on a forestry basis by expert foresters, with expenses paid from forest income. Scattered state and National Forest lands would be consolidated by exchange into compact areas. The commission recommended adequate appropriations for forest fire protection, the establishment of a state nursery to distribute seedlings at cost, pay-

ment by the state of a small sum an acre a year on state forests to counties in lieu of taxes, and more funds to fight forest diseases and insect pests. A land economic survey was also recommended. The commission further

California Wins, Illinois and Pennsylvania Lose Conservation Bond Issues

Although complete returns were not available at the time of going to press, indications were that one outstanding conservation bond issue was victorious in the November election while two were defeated. A State Park bond issue was approved by the people of California, while the conservation bond issue in Illinois and the forest bond issue in Pennsylvania were defeated.

Returns from 7,000 precincts out of 9,000 in California gave the \$6,000,000 State Park bond issue a 418,000 majority. 667,000 voted for the issue and 249,000 voted against it. It was stated that the issue received the highest vote of any of the projects submitted to the people of the state. The bond issue was authorized by the last session of the state legislature and provides that every dollar of state money spent for park purposes must be matched with contributions from sources other than the state, which means that \$12,000,000 will be available to carry out the program of preserving as state parks, outstanding forests, beach and desert areas in the state.

Illinois' \$20,000,000 bond issue for forest, game and fish preserves and public shooting, fishing and recreation grounds appeared to have been defeated, as 4,745 precincts out of 6,942 gave opponents of the issue a 268,824 majority. The bond issue bill was passed by the last general assembly of the state. With a number of rural precincts yet to be heard from, the \$25,000,000 forest bond issue in Pennsylvania was reported defeated. This issue, the largest in the history of state forestry, was designed to provide money for the immediate acquirement of a system of state forests to meet in some measure the social and economic requirements of future generations of Pennsylvanians.

approved a greater reduction of timber taxes to encourage reforestation of private lands under the yield tax privilege adopted two years ago.

Committee Rejects Water Power Plan for Potomac Palisades

Recommendation that acquisition of the land on both sides of the Potomac River from Georgetown to a point above Great Falls be developed for park purposes only was made to the National Park and Planning Commission, November 12, by its special committee which has been studying the possibility of working out a joint parkway and water power project. The committee after considering several plans for the joint project, concluded that a water power project should not be allowed to interfere with the recreational development and preservation of the Great Falls of the Potomac.

During the past summer a joint fact-finding committee, representing both the power interests and the National Park and Planning Commission, presented several plans for the project. These plans were given to the commission's special committee for study, and its report, in part, follows:

"That the adoption of any of the proposals contained in the joint committee's report for the development of water-power within this area or of

any plan for water power development known or suggested to the commission will entail in greater or less degree destruction of these National Park values and their im-

pairment by the introduction of incongruous structures and power line.

"That the dedication of this area for park purposes by the Nation is in the interest and for the enjoyment of all the citizens of the United States who claim the National Capital as a proud heritage.

"That the use of this area for power purposes is largely of local and regional interest and benefit and that the power to be developed therefrom is neither urgently required nor the only power obtainable at reasonable cost to meet the demand."

Game Conference in New York

Having as its keynote the coordination among all organizations and groups interested in the common cause of conservation, the Fifteenth Annual Game Conference will be held in New York, December 3 and 4, under the auspices of the American Game Protective Association. George D. Pratt, President of The American Forestry Association, is Chairman of the Conference.

Among the subjects to be presented are "Certain Aspects of Wild Life Conservation," by Paul G. Redington, Chief of the United States Biological Survey; "Combining Forestry and Game Educational Work," by Ovid M. Butler, Executive Secretary of The American Forestry Association; "The National Pollution Menace," by Dr. Henry Baldwin Ward, of the Izaak Walton League of America; "The Hunter as a Conservationist," by W. C. Chanler, of the Boone and Crockett Club; and "A National Conservation Policy," by John B. Burnham, of the American Game Protective Association.

Other speakers include Alden H. Hadley, of the National Association of Audubon Societies; Dr. Harold C. Bryant, of the Western Association of State Game Commissioners; Aldo Leopold, of the Sporting Arms and Ammunition Manufacturers' Institute; Dr. John C. Phillips, of the American Wild Fowls; Ernest C. Oberholtzer, of the Quetico-Superior Council; W. B. Coleman, of the American Game Breeders' Society; John C. Huntington, of the Game Conservation Society; Paul R. Needham, of the American Fisheries Society; David C. Mills, of the national association of the fur industry; Robert Sterling Yard, of the National Parks Association; Dr. T. Gilbert Pearson, of the National Committee on Wild Life Legislation; and David H. Madsen, of the International Association of Game, Fish and Conservation Commissioners.

Yale School of Forestry Receives \$20,000 Gift

A gift of \$20,000, for fellowships and scholarships, has been made to the Yale School of Forestry by Mrs. William H. Sage, of Albany, New York, as a memorial to the late William Henry Sage, a graduate of Yale College in the class of 1865.

Mr. Sage, before his death, provided a fund of \$300,000, in memory of his son, DeWitt Linn Sage, for the erection of a building to house the School of Forestry. Sage Hall has been an important factor in building and strengthening Yale's activities in forestry.

"The new gift," Dean Henry S. Graves has stated, "will greatly benefit the School of Forestry; it will also contribute in a very real way to the advance of forestry in the United States. It will enable the University to bring to the school students of exceptional ability, who otherwise would be unable to take advantage of the special facilities for the study of forestry."

President Receives Chestnuts From Historic Tree

Thirteen horse chestnuts, fruit of the famous Friendship Tree, near Bath, Pennsylvania, one of the most historic trees in the United States, were presented to President Coolidge at the White House, November 1, by G. Harris Collingwood, Forester of The American Forestry Association.

Mr. Collingwood made the presentation in behalf of Barbara Bayne, of Inglewood, California, upon whom the association has conferred a complimentary membership as "Tree Historian of America." Similar gifts of thirteen nuts, one each for the original states of the Union, were presented to the various governors, and to governors of territories and possessions of the United States, for the purpose of establishing "Washington Friendship Groves" throughout the country.

In accepting the horse chestnuts, President Coolidge assured representatives of the association that scions of the tree George Washington gave to General Robert Brown as a token of friendship would be planted on the White House grounds.

Waterville Timber Sold

The United States Forest Service has announced the sale of 29,997,000 board feet of timber and 185,000 cords of pulp wood from the Waterville addition to the White Mountain National Forest, in New Hampshire. The sale, closed late in October, was made to the Waterville Timber Company, and includes the upper watershed of the Mad River, near the towns of Livermore and Waterville. The estimated value of the timber and pulpwood sold, according to the Forest Service, is \$994,323. The entire Waterville area of 22,500 acres, 800 acres of which are covered with virgin stands of spruce, was purchased in June, 1928, for \$998,000. Its acquisition was made possible by the McNary-Woodruff bill, which authorizes \$8,000,000 for the purchase of National Forest lands in the east over a three-year period.

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Wooden Greeting Cards



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Each set consists of two Sticks in a heavy canvas container and a 16-page booklet giving complete instructions for use.

\$1 a Set, postpaid

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Game Preserve FOR SALE in Dixie

A plantation estate comprising 6,281 acres located on a tidewater river in southeastern Georgia. A most attractive hunting and fishing preserve in a region abounding with game.

One-half the area is timbered with second-growth southern pine which will, if properly managed, provide a satisfactory revenue.

This property adjoins other sportsmen's estates. Deer, turkey, quail and ducks are plentiful. Fencing is the only requisite to insure the game supply.

An early sale is desired to settle an estate, which explains the surprisingly low asking price of \$4.00 an acre.

We recommend this property highly. Write us, without obligation, for further information.

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BIRDS AND AVIARIES

The Avicultural Society can help you if you keep foreign birds in cages or aviaries. While only recently organized, there are now over 130 members in all parts of the United States. The dues are \$5.00 yearly, and if interested communicate for further particulars with

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Grain, Nut, Seed, Mixture—5 lbs., \$1.10
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Furnished with screw post for attaching to coat lapel or pin with safety lock attachment. When ordering please state type desired.

\$2.00 each, postpaid

THE AMERICAN FORESTRY ASSOCIATION
Washington, D. C.

Porcupine Control in Arizona

More than 1,300 dens on the Coconino and Tusayan National Forests have been baited in the porcupine control work in Arizona by the United States Biological Survey. In addition to this poison has been placed at 677 tree stations.

A check on seventy-two stations baited in the same area in 1926 reveals that thirty-two porcupines were killed, and brought out evidence that the animals had visited twenty-eight of the remaining forty stations.

New California Bird Sanctuary

A new bird sanctuary, to be known as Tule Lake Bird Refuge, has been created by President Coolidge in northern California, bringing to eighty the total of wild-life reservations administered by the United States Biological Survey. The refuge is located in Siskiyou County, within the Klamath Irrigation Project and consists of 10,300 acres of Government lands, which are flooded to a considerable extent and thus form an excellent waterfowl resort.

Tule Lake is a favorite wintering ground for the cackling goose, a bird that breeds on the northwest coast of Alaska. It has long been the mecca of wild fowl such as the mallard, redhead, ruddy duck, cinnamon teal, avocets, stilts and other shore birds. Hunting privileges will be continued on an area at the southern end of the lake. On October 10, the Secretary of Agriculture approved an order permitting hunting on 2,800 acres of the land forming the north boundary in the vicinity of Mount Diablo Meridian.

James Girvin Peters

At the fall meeting of the Governing Board of The American Forestry Association, the following resolution was passed: "It is with profound sorrow that we, the Directors of The American Forestry Association, meeting in Washington on October 11th, 1928, learn of the sudden death at Camden, Arkansas, on October 9th, of James Girvin Peters, Assistant Forester in charge of Public Relations, United States Forest Service. By his death, forestry has lost one of its finest men—known, loved and honored throughout the profession for his sterling character, his charming personality and his professional achievements.

"To him, forestry and the American public are deeply indebted for his inspiring leadership and his notable accomplishments in the field of cooperative forestry, to which he devoted more than twenty years of his professional career. His contributions to this and other fields of forestry constitute a record that is both an honor and a distinction to the profession of forestry."

Committee Nominates Association's Officers

Nominations of officers of The American Forestry Association for 1929 have been submitted by the Committee on Elections and the candidates recommended are printed below. The Committee on Elections comprised Barrington Moore, chairman, of New York, Earl H. Clapp of the Forest Service and Franklin W. Reed of the National Lumber Manufacturers Association.

During the month of November, the members of the Association will receive the letter ballot bearing the names of the candidates recommended for election by the committee. The By-Laws of the Association provide that other nominations may be made by twenty-five or more members, these nominations to be submitted to the Committee on Elections. No others, however, have been proposed, so that the ballot for 1929 will contain only the names proposed by the Committee on Elections. The President, twenty-one Vice Presidents, Treasurer and four Directors are to be elected by the forthcoming ballot. The Directors whose terms expire at the close of this year are Mrs. John D. Sherman, Colonel Joseph Hyde Pratt and Colonel William B. Greeley. Another vacancy in the Board was created by the recent death of Mr. Charles Sheldon, whose successor is to be elected.

The candidates named by the Committee on Elections are:

For President—George D. Pratt, New York.

For Vice-Presidents—James B. Aswell, Louisiana, Representative in Congress; Daniel Carter Beard, New York, National Boy Scout Commissioner; Devere Dierks, Arkansas, Dierks Lumber and Coal Company; W. B. Harbison, California, California Farm Bureau Federation; Charles H. Herty, New York, The Chemical Foundation; Clark Howell, Georgia, publisher, *Atlanta Constitution*; W. D. Humiston, Idaho, Potlatch Lumber Company; Scott Leavitt, Montana, Representative in Congress; Clarence C. Little, Michigan, President, University of Michigan; C. H. MacDowell, Illinois, President, Armour Fertilizer Company; Charles L. McNary, United States Senator and joint author Clarke-McNary Law; John McSweeney, Ohio, Representative in Congress; Charles Nagle, Missouri, Chairman, Business Men's Commission on Agriculture; George A. Parks, Alaska, Governor of Alaska; Joseph Hyde Pratt, North Carolina, North Carolina Forestry Association; George Scott, Illinois, National Director, Izaak Walton League of America; H. L. Schantz, Arizona, President, University of Arizona; Mrs. John D. Sherman, Colorado, former President, General Federation of Women's Clubs; Frederic C. Walcott, Connecticut, President, Massachusetts State Board of Fisheries and Game; Mrs. Cora C. Whitley, Iowa, Vice Chairman, Division of Conservation of Nat-

ural Resources, General Federation of Women's Clubs; B. F. Williamson, Florida, President, Florida Board of Forestry.

For Treasurer—George O. Vass, District of Columbia.

For Directors—Five-year term: Colonel William B. Greeley, Washington, former Chief, United States Forest Service; John C. Phillips, Massachusetts, President, Massachusetts Fish and Game Association; Louis J. Taber, Ohio, Master, National Grange. Director to succeed Mr. Sheldon, whose term would have expired December 31, 1932, W. D. Tyler, Virginia, former President, Southern Forestry Congress.

Blister Rust Meeting in Rhode Island

The annual conference on control of white pine blister rust was held in Providence, R. I., November 19 and 20. The first day's session was in the Capitol Building where the problems of control in the West as well as in the East were discussed. The conference of the second day included a trip to the Goddard Memorial Park near East Greenwich. This includes over 500 acres of forest plantations, some of which date back for fifty years. Of particular interest to the blister rust agents was the European larch canker, which is attacking a planted stand of Douglas Fir.

Reindeer Survey Nears Completion

Investigations by officers of the Canadian Department of the Interior to determine the reindeer grazing possibilities of the great northern plains of Canada reaching to the Arctic ocean are nearing completion. The study of these areas was undertaken in 1926 for the North West Territories and Yukon Branch in order to decide the practicability of establishing herds of reindeer as a source of food and clothing for the Eskimos and Indians of the far north. A recent report from the investigators stated that they were working in the area north of Great Bear Lake. This part of the survey will be completed this fall, after which the party will return to Ottawa to present a complete report of their two years' work to the Department.

The problem of securing new sources of food and clothing for Canada's native population in the far north has engaged the attention of the Dominion Government for some time. The successful introduction of reindeer among northern aborigines in other parts of the continent suggested the possibility of the reindeer being a solution of the problem in Canada. Early reports stated that an immense reindeer grazing area covering about 15,000 square miles lay to the east of the Mackenzie River delta and inland from the Arctic ocean, which it was estimated was sufficient to provide grazing for 250,000 reindeer.

Reunion of Michigan Foresters

Old forestry graduates from fifteen states visited the School of Forestry and Conservation at the quarter century reunion of Michigan University Foresters at Ann Arbor, on October 26 and 27. The two days were filled with trips to the forestry properties, social sessions full of reminiscence, and conferences with Dean Samuel T. Dana and his faculty on the policy of the school. The meeting started with a trip to the various laboratories and new library of the school. Special interest was evident among the alumni in the new wood utilization laboratory, which is just about completed and which contains modern equipment for timber testing, kiln drying, preservative treatment of wood and other forest products, investigations and teaching.

Professor L. J. Young, '11, conducted a trip over the University plantations and late in the afternoon the group visited Stinchfield Woods, a 350-acre tract owned by the University and including some virgin timber. The open land on the tract is now being reforested as a part of the practice work of the present undergraduate students. Thinnings and improvement cuttings from the timbered portion furnished considerable revenue to the University through the sale of fuel to Ann Arbor residents.

The second day was given over to a business meeting of the Michigan Foresters' Association, which is the alumni body. John F. Preston, '07, of the Hammermill Paper Company, presided, and E. V. Jotter, '08, made the secretary's report. President C. C. Little, of the University, told the alumni of his ambition to make the university as a whole, as well as the School of Forestry and Conservation, an institution of service in working out the economic problems of Michigan. He assured them of his deep personal interest in the school and his confidence in its future.

Addition to New York Parks

The Board of Commissioners of the Land Office of New York has approved the purchase of 6,345 acres of land for additions to the forest preserve in the Adirondack and Catskill Parks, in New York. Of this amount, 5,929 acres are located in the Adirondack Mountains.

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Ask the Forester?

Each Month Forestry Questions Submitted to the Association Will Be Answered in This Column. If an Immediate Reply is Desired a Self-Addressed, Stamped Envelope Must Accompany Letter.



QUESTION: How should holly seeds be planted to get the best results?—J. D. M., South Carolina.

ANSWER: Holly seed should be collected in late autumn after the berries are well colored, freed from the outer coat and then stratified and kept in a moist but well-drained place. Holly seed rarely germinate the first spring, hence it is generally kept stratified over the first summer and planted early the succeeding spring.

QUESTION: Are Sequoia trees found in the petrified forest of the Yellowstone?—J. B. S., Washington, D. C.

ANSWER: Petrified trees of the genus *Sequoia magnifica* are found abundantly in this area.

QUESTION: Can English walnuts be grown commercially in northern Ohio?—L. W. C., Ohio.

ANSWER: According to the United States Department of Agriculture, English, or Persian, walnuts grow in the eastern United States but not with commercial success. In the Atlantic coastal plain region from Long Island Sound south to the lower Chesapeake Peninsula, and inland to the foothills of southern Pennsylvania and northern Maryland small plantings are fairly common. During favorable seasons trees in this region bear fair crops of walnuts.

QUESTION: What specie of tree did Lord Balfour, of Great Britain, plant in Balfour Forest, in Palestine?—P. N. H., Mississippi.

ANSWER: Aleppo pine, sometimes called Jerusalem pine, which used to be common in Judea. The tree grows to a height of twelve or fifteen feet and attains maturity in twenty-five or thirty years. The wood is useful for the building trades and furniture making.

QUESTION: Why do abandoned fields no longer seed into thick stands of pine as they formerly did?—W. O. B., Virginia.

ANSWER: This is largely due to the lack of seed trees. The large old pines that formerly grew along fence rows and in nearby

woods are being cut. Young trees do not produce as many seeds as do the large old ones, nor do they scatter the seed as far. This is also true of cut-over woods, where no provision for seed is made.

QUESTION: What are weed trees?—E. L. S., New Jersey.

ANSWER: The term "weed tree" is relative. It refers to the less desirable species of trees which are growing or can grow on a particular area. They are the trees which when compared to the others growing about them promise the least return in terms of dollars and cents.

In the northeast, blue beech, iron wood, and occasionally red maple are classed as "weed trees," while further south scrub pine is included in the list. Each region has its own weed trees. The most satisfactory way for the woodland owner to decide between "weed" and "crop" trees is to remove the dead and dying trees; those overshadowed by larger trees; and those of such inferior form as to be evident that they cannot produce valuable saw-logs.

QUESTION: On page 439 (June, 1928) you give a woodchuck exterminator—why not use it also on rats?—K. N. W., New York.

ANSWER: The Biological Survey of the U. S. Department of Agriculture regards carbon disulphide gas as unsatisfactory for killing rats. Their burrows are too shallow and too extensive to permit the gas to act. They are not like woodchuck holes, which are comparatively short and deep, so that the heavy carbon disulphide gas sinks to the lower chambers in sufficiently concentrated form to overcome the animal.

Farmers Bulletin 1533 of the U. S. Department of Agriculture entitled "Rat Control" recommends the use of powdered red squill as an effective rat poison which is relatively harmless to human beings and domestic animals. This bulletin is available from the Superintendent of Documents, Government Printing Office, Washington, D. C., at five cents a copy.

New Hampshire Wild Life Worth \$6,500,000 a Year

Game and birds return to New Hampshire annually a value of at least \$6,500,000, W. C. Henderson, Associate Chief of the United States Biological Survey, recently told the convention of the New Hampshire Division of the Izaak Walton League of America.

This value is reached by adding the following items: Valuations for flesh, fur, and feathers, \$400,000; for insect destroying services of birds, \$1,500,000; for recreational values in connection with the general tourist business, \$3,000,000, and for returns due to game alone, \$100,000 from license fees, and \$1,500,000 for general expenditures by hunters. These figures omit reference to values from fish, which are not within the scope of the Biological Survey work.

Valuation of birds as insect destroyers is based on general surveys in the Eastern States, according to Mr. Henderson. In this section the breeding bird population is estimated to average about one pair to the acre, with fully as many migratory birds spending a shorter time in each locality. Taking the nominal value of ten cents a bird for its services in killing insects, the total amounts to \$1,500,000, which is conservative because many birds are worth much more than ten cents for such services.

In 1926 New Hampshire issued 52,642 combination licenses to residents and 2,305 to non-residents, bringing a revenue of more than \$100,000. These 55,000 hunters put into circulation in New Hampshire for clothing, weapons, ammunition, transportation, food, lodging and personal service more than \$1,500,000. Mr. Henderson's total did not include approximately \$50,000 in fishing licenses for non-residents and a proportional sum spent by fishermen.

3,000,000 Christmas Trees From Canada

Three million Christmas trees will be exported to the United States from New Brunswick, Canada, for the Christmas trade, according to the United States Department of Commerce. Cutting operations are already under way to supply the markets of New York, Chicago, and Boston, as well as many other regions of the United States.

Survey in New Hampshire

C. S. Herr has been appointed by the Agricultural Extension Service of the University of New Hampshire to conduct a survey of wood-using industries and farm wood lots in Grafton and Coos Counties. Until recently Mr. Herr has been agent in charge of white pine blister rust control in Hillsboro County.

Tour Maryland Forests

Members of the Maryland Forestry Association, in cooperation with the State Forestry Department, conducted an automobile tour in October over Old Line timber and park preserves in Western Maryland. Forty persons, including representatives of the State Advisory Board of Forestry and regents of the University of Maryland, signed up for the trip and thus had a chance to see the woods and mountains, dressed brilliantly for autumn, and to get acquainted first hand with forest conditions and possibilities in the state.

The party set out from Baltimore, stopping at Frederick and Hagerstown to gather up additional members, then, piloted by a contingent of state police, swung westward over the mountains. Stops were made at the Bittinger fire tower, the first erected in Maryland, and at other interesting or historic points. The Maryland Forestry Association has endorsed the ten-year program of the Forestry Department to acquire 200,000 acres of land, most of it in Western Maryland, for conversion into State Forests.

New Forestry District in Alabama

A new forestry district has been established in the south central part of Wilcox County, Alabama, and the north central part of Monroe County, according to the Alabama Commission of Forestry. The gross area included amounts to approximately 138,000 acres. O. J. Black, of Natchez, Alabama, has been engaged as the local forestry agent.

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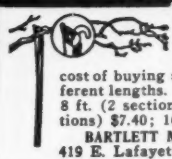
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New York Pines Quarantined

The Department of Agriculture has prohibited the interstate movement of Scotch pine, and other hard pine species, from nine counties in northern New York State, in an effort to prevent further spread of Woodgate rust.

Included in the regulated area are Clinton, Essex, Franklin, Hamilton, Herkimer, Jefferson, Lewis, Oneida and St. Lawrence Counties. Two heavily infected areas are known, one just southwest of the Adirondack Mountains and the other in the extreme northeastern corner of the State. In other sections it is less generally distributed.

While all hard pines seem susceptible to the rust, several important species, including red and pitch pine, have not been proved able to support the fungus long enough to harbor and disseminate the disease. These have been exempted. Woodgate rust causes galls or swellings on the trunks and limbs of the trees. The parts above the galls then die, or "brooms" are produced, which destroy the lumber value of the pines.

New York Conservationists Meet

The twenty-second annual convention of the New York Conservation Association, Inc., and affiliated organizations, was held at Lake Placid, New York, late in October. Important problems of reforestation, fish and game, recreation, and stream pollution received constructive consideration. Among the speakers were E. R. Eastman, editor, *American Agriculturist*; Senator James W. Wadsworth, and Robert W. Chambers, famous novelist.

International Forestry Congress in Stockholm

The International Congress of Forestry Experiment Stations will be held in the Col-

lege of Forestry at Stockholm, Sweden, July 22-27, 1929. Included in the subjects planned for discussion is an international bibliography of forestry, standardized methods of measuring the results of experimental plots, methods and terminology in the science of forest soils, progress in silviculture, and plans for reorganizing the International Association of Forestry Experiment Stations. Extended trips into North, Central and South Sweden are planned, and shorter ones into the vicinity of Stockholm. This will be the sixth meeting of the Congress, the last meeting having been held in 1910 in Brussels.

Prizewinning New York Boy Tours Adirondacks

Out of 804 New York State boys and girls who undertook the forestry program of the 4-H clubs, first prize for outstanding achievement went to Harry W. Dengler, of Utica, New York. Instead of the announced prize of \$25.00 in cash, he was the guest of the Empire State Forest Products Association during a three-day forestry tour of the Adirondacks. Second prize, consisting of membership in The American Forestry Association, went to John C. Law of Utica, New York, while for third prize a book on tree identification was presented to Charles Ashe, of Unadella, New York.

After returning from the tour, Harry Dengler addressed a letter of appreciation to the Empire State Forest Products Association. "There was not an idle moment in it," he wrote. "All around me were men who seemed interested in forestry. From them I learned many things I did not know and some which I never had any idea about."

Wilderness Areas Preserved in Mount Rainier Park

The United States Department of Interior, through the National Park Service, has set aside certain wilderness areas in Mount Rainier National Park, Washington, to be kept in the condition to which nature developed them. They will be accessible only by foot or by horseback, as roads will be forbidden. Hotels, also, will not be permitted. Only camps made by individual vacationists will be allowed.

In designating these regions as wilderness areas, Director Stephen T. Mather stated: "The National Park Service is in sympathy with the plan to have all of the territory in Mount Rainier National Park lying north of Berry Peak, Ipsut Pass, Spray Park, Mystic Lake, and Yakima Peak, and the areas known as Klapatche Park, St. Andrews Park, and Indian Henry's Hunting Ground designated as wilderness areas free from roads, hotels, pay camps, and other commercial developments."

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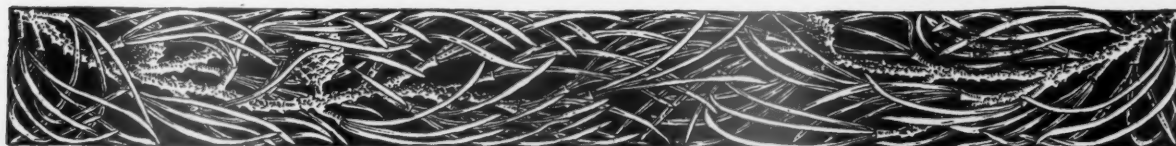
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FROM.....

December, 1928

Mention AMERICAN FORESTS AND FOREST LIFE—It Helps

Irish Free State Forestry

State forestry in Ireland began in 1905, and in spite of various upsets due to politics and war has continued to the present, says the United States Forest Service. Some 35,000 acres have been acquired, of which 24,000 were bare land needing planting and 4,000 were in timber. Over 13,000 acres have been planted and excellent progress is being made, about 2,500 acres being planted each year. Most attention has been given to conifers, chiefly exotics, which for the most part have done very well. About twenty-seven per cent of the planting has been Sitka spruce, twenty-three per cent Scotch pine, nineteen per cent Douglas fir, fourteen per cent Corsican pine, nine per cent European larch, and six per cent Japanese larch. Douglas fir, Sitka spruce, and lowland white fir have made the most rapid growth, followed by the Japanese larch. On exposed areas, lodgepole pine and the Rocky Mountain form of the Douglas fir have done well.

Nursery stock is distributed free to local authorities and to private forest landowners and farmers. Public institutions and bodies are encouraged to establish nurseries, and for each acre of such nurseries the state contributes 100 pounds.

The Irish land act of 1909 provides that the consent of the forestry department shall be obtained prior to cutting on vested holdings. This has resulted in preventing heavy cuttings.

New Mexico Has Petrified Forest

The *Daily Bulletin*, of the Southwestern District of the United States Forest Service, reports that a petrified forest has been lately discovered twenty miles northwest of Magdalena, New Mexico.

Most of the logs, the Service reports, have been broken up, but in one small area great sections of the trees remain. One is reported to be thirty feet in length with a diameter of four feet. Another large log has been broken into short sections four or five feet in length and these have been rolled out so that the big log has an appearance of having been sawed into sections. The rings of the trees are plainly visible.

Cumberland Falls Power Hearing Postponed

Public hearing on the application of the Cumberland Hydro-Electric Power Company for a license for a proposed water-power development at Cumberland Falls, on the Cumberland River, in Kentucky, has been postponed until December 5, according to the Federal Power Commission. The company submitted in 1923 an application for a preliminary permit to construct the proposed project and the commission in 1924 issued the permit. Application for a license was made in 1926, and it is on this application that the hearing will be held.

Greeley Sees Greater Utilization of Waste in Northwest States

Addressing the first Pulp and Paper Conference, at the University of Washington, late in October, Colonel W. B. Greeley, former Chief of the United States Forest Service, and now Secretary-Manager of the West Coast Lumberman's Association, declared that the development of the pulp and paper industry on the northern Pacific Coast is a most promising phase of progress in the utilization of wood waste and in the future perpetuation of its forest resources.

"The pulping industries provide the best solution yet offered for the utilization of mill and logging wastes, not convertible into lumber products, which have hitherto constituted one of the most serious drags upon the efficiency and prosperity of the lumber industry of this region," Colonel Greeley said. "The progress of forest industries the world over, in financial returns, stability, and opportunity to reproduce their raw materials through the practice of forestry has been coordinate with the degree of utilization of forest-grown materials attainable and upon the correlated, or integrated, use of such materials for a variety of commercial products. The more rapidly the forests of the West Coast pass beyond the 'one-product' stage of industrial development, the more rapidly will the many problems surrounding the financial success and permanence of the industrial structure based upon these forests be solved."

Oso "Volcano" Dead

The Oso "volcano" on the Santa Barbara National Forest, California, is now extinct. The so-called volcano started up in 1923 immediately following the big brush fire which swept that section of the forest in the Santa Barbara watershed. It was discovered when forest fire fighters, patrolling the still smoldering fireline noticed puffs of smoke occurring at intervals high on the mountain slope.

Investigation disclosed that the brush fire had ignited an oil shale formation. For four years the fire has burned, sending out its puffs of smoke from the interior of the mountain, as the flames progressed slowly downward through the shale, and at times, after the grass had commenced to return to the fire burn, it would occasionally set the dry grass aflame.

The burning shale was watched for the first two years, but finally the fire burned so far below the surface that no further danger of the flames communicating with the surface grasses remained, though month in and month out, winter and summer, the occasional puffs of smoke would be seen. It is believed that the heavy rains of the past spring probably flooded the aperture, and extinguished the fire.

Arkansas Forestry Meeting

The Arkansas Forest Protection Association met in Hot Springs, Arkansas, October 25, 1928, to complete its organization and elect officers. Backed by business and professional men, the association promises to be a factor in the protection of Arkansas' forest resources.

The first meeting was held in Camden, Arkansas, on October 8, 1928, when basic plans were laid for an association whose purpose is to prevent forest fires and preserve wild life, watersheds and esthetic forest beauty. The officers of the association are: A. L. Strauss, Malvin, President; L. R. Wilcoxon, Crossett, Vice-President; W. L. Hall, Hot Springs, Secretary-Treasurer. Headquarters are in Hot Springs. The annual dues of \$1 make it possible for farmers owning small woodlots, teachers in public schools, civic club members and the public in general to become members.

The Board of Directors is composed of the three principal officers and six others as follows: H. C. Couch, Pine Bluff; R. H. Charlton, Hot Springs; F. J. Leeper, Hot Springs; John G. Lonsdale, St. Louis (Lonsdale); W. G. Morrow, Camden, and B. S. Cole, Glenwood.

Finds New Tree in Illinois


With the discovery of yellow wood, or gopher wood, in Alexander County, Illinois, State Forester R. B. Miller has announced the addition of another species of tree to the varieties found in the state.

Yellow wood, *Clarastris lutea*, attains a growth of from one to two feet in diameter. The bark is gray, and the tree bears pods, being related to the locust. The wood is strong and hard, and the heartwood is a clear yellow color when freshly cut. From it a yellow dye can be secured by steeping in hot water. The roots are also deep yellow in color.

School Book Covers Urge Fire Prevention

A device of the Texas Forest Service for imbedding the fire-prevention idea in the minds of children is the distribution of a school-book cover bearing fire drawings and slogans. The cover is made of heavy kraft paper. On both front and back are pictures of humanized trees and the slogans "We trees are your friends—help protect us," and "Fire is our worst enemy—never start one." Eight fire-prevention rules are given.

In Louisiana the State division of forestry is preparing a design for a fire-prevention book cover which it expects to distribute through the State. On the front is a picture of a live oak tree, and the back displays a fire picture with the legend "Help stop this." Five fire-prevention cautions appear under the head "Bring back our forests." This cover is to be made of paper produced from Louisiana pine and will bear a statement to that effect.




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Bids will be received by the Superintendent of the Klamath Indian Agency, Klamath Agency, Oregon, until January 29 for the Sykan; February 1 for the Black Hills; and February 5, 1929, for the Whiskey Creek Units of timber containing 500,000,000, 150,000,000 and 160,000,000 board feet log scale, respectively, principally yellow and sugar pine, lying in the southeastern part of the Klamath Indian Reservation, Oregon. The right to reject any and all bids by the Secretary of the Interior is reserved. For further information, copy of the form of contract and map apply to the Superintendent, Klamath Agency, Oregon.

CHAS. H. BURKE,
Commissioner.

Washington, D. C., November 14, 1928.

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Mention AMERICAN FORESTS AND FOREST LIFE—It Helps

Book News



and Reviews



DEVELOPMENT OF GOVERNMENTAL FOREST CONTROL IN THE UNITED STATES. By Jenks Cameron. Johns Hopkins Press, Baltimore, Maryland.

The "Development of Governmental Forest Control in the United States" is a history and interpretation of the relation of the public and the forests from the earliest Colonial times to the present. It is the latest of a series of studies of governmental activities and administrative policies and methods made by the Institute of Government Research, Washington.

Jenks Cameron, author of the book, has given us a compilation of statistics, legal quotations and historical data in a form and style which it is a delight to read. In depicting the tale of our forests and the constructive part which even their wasteful destruction has played in the growth of our civilization he has written a novel of adventure and romance, something almost unheard of in research publications. He has made it possible for us to study our lesson in forest history that we may the better decide what our forest future shall be, without the handicap of tedious monotony and pedagogical prosiness.

If the title of the book itself were as intriguing to the imagination as that of some of the chapters there would be little need to recommend it to the reader. Once he has imbued himself with the "Legend of Inexhaustibility" his curiosity is piqued to know what "The Broad Arrow," a Spanish saint named Santa Rosa, and presumably a lady, or an "Irish Apothecary" has to do with forest conservation. When he has learned of those bold fellows who defied the mandates of the king, and the prohibitions of the Washington bureaucrats, to carve for themselves a bit of profit out of the wilderness, he must needs read on through "The Era of Magnificent Plundering" when their successors, none the less bold, but perhaps a trifle more refined in their methods, are described as doing their "buccaneering" on an even broader scale.

Those of us who lived in "The Era of Magnificent Indignation" were taught that "wicked lumbermen" is all one word, like "damyankee." The most magnificent of the indignant ones strove even to have us believe that this same unhyphenated criminal had no good points about him whatsoever, that he broke laws and cut down trees for the pure joy of destruction and to no other end. It is good to get the truth from such an authoritative source as the Institute of Government Research. Jenks Cameron does not belittle his faults, even though he may paint them in more attractive colors, and at the same time he gives him full credit for his virtues and for the public service he rendered, through creating from the removal of the virgin forests, building material for the construction of new states in the treeless regions of the great plains.

Chapter XI—"The Movement for a National Forest Policy"—deals with the period from the close of the World War down to the present, during which time there has at last come about a sympathetic meeting of minds between the theoretical forest conservationists, who would preserve the forests for their own sakes, and the practical forest owners, who must so handle their properties as to make a profit from them.

In keeping with its name the book deals at length with the National Forest System, all preceding forest policies, and the growth of legislation and policies governing the management of the national forest. It gives also an account of the growth and develop-

ment of the United States Forest Service itself; a portion of whose duties is national forest administration. It is based on long and painstaking research among the departmental records, supplemented by innumerable conferences with Forest Service officials both past and present. Within the limits of the space available it tells a surprisingly full and detailed story of all that has been done, and how and why it was done, from the first inception of a federal forestry organization down to the immediate present. With it all the book is unbiased. Of the various Federal forestry leaders, as they have come and gone, it gives them full credit for the good work they have done, and the noble motives which impelled them, and at the same time does not cover up their faults or mistakes.—F. W. R.

Within the two hundred and sixty-three pages of the annual report of the Director of Forestry of the Philippine Islands for the fiscal year ended December 31, 1927, one may secure an idea of the variety of activities which demand the attention of Philippine foresters. The importance of the work to the welfare of the islands is demonstrated by its rapid growth—the demand for services continuing to exceed the increases in the staff.

THE BOYS' BOOK OF CAMP LIFE. By Elson Jessup. Published by E. P. Dutton and Company, New York. Price, \$2.50.

The title is misleading, for although written to appeal to boys, there are suggestions and ideas in the book that will prove helpful toward making more comfortable camping trips for anyone, young or old. To the business or professional man who occasionally takes Boy Scouts for an overnight hike the book is specially recommended. It should help him pass a comfortable night, keep the boys constructively occupied, and bring them back home well and happy.—G. H. C.

GOAT GRAZING AND FORESTRY IN CYPRUS. By A. H. Unwin, Principal Officer of Cyprus. Published by Crosby Lockwood and Son, London.

In view of the periodic discussions in this country on the relation of grazing to forestry, this book should find many interested readers in the United States. Those who hold to the theory that goat grazing is not detrimental to forest growth, however, will be disappointed in the evidence presented by the author. The reader must bear in mind, however, that the author is dealing in the main with the grazing of goats which are generally admitted to be much more destructive than sheep or cattle. At the outset, the author gives ancient and modern references to goat grazing and its damaging destruction to forests in Greece and Cyprus, and then devotes five chapters to educational experiences with goat grazing in other countries including India, Syria, Great Britain, France, Germany, Switzerland, Aus-

tria, Rumania, Greece, Malta, Australia, Africa, Canada, and the United States. The remaining chapters deal with goat grazing in Cyprus, with particular reference to its damage to forest trees and shrubs, soil, water supply, and the community in general.—O. M. B.

Lumber and its remanufacturing ranked eighth among sixteen industrial groups listed, according to the value of their products, in the "Commerce Yearbook, 1928." These wood products totaled an aggregate value of \$3,689,000,000 and employed 921,145 wage earners. Southern pine and Douglas fir led in quantity and value of exports. In 1926 farm forest products were valued at \$318,000,000, representing 3.4 per cent of all farm values.

Such information may be gleaned from some of the 30 pages out of a total of more than 700 in the first volume of "Commerce Yearbook, 1928," published by the United States Department of Commerce. This is obtainable from the Government Printing Office, \$1.25 a volume.

HISTORIC ROADSIDES IN NEW JERSEY. Innes and Sons, Philadelphia. Published by The Society of Colonial Wars in the State of New Jersey, 1928.

To the lover of Colonial and Revolutionary history, this little book—a condensed description of the principal historic landmarks in New Jersey—will come as a welcome addition to *Americana*. One of the principal main areas in which the battles of the Revolution were fought, no part of the Colonies carries a more vivid record of the deadly hatred that existed between Tory and Continental than does Jersey. And in these days, when good roads and the automobile have made it so easy to visit and familiarize oneself with historic spots there is little excuse for any citizen to remain in ignorance of the historic record his State so proudly bears. Sprinkled liberally through the book are many interesting illustrations and, in addition, a Rand-McNally map of the State is included, bearing full historic notations, which will be of great assistance to the student and motorist. For the purchase of copies inquiries should be addressed to Walter Lester Glenney, Secretary, 916 Madison Avenue, Plainfield, New Jersey.—L. M. C.

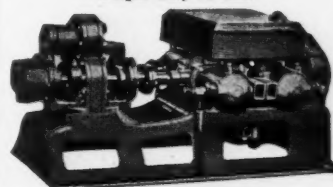
Another tree guide has appeared under the title "Forest Trees of Texas—How to Know Them." It contains line drawings and easily understood descriptions of ninety-two of the more common and important forest trees in Texas. The descriptions are sufficient for ordinary identification and include a statement regarding the character of the wood and purpose for which it is used.

The publication was prepared jointly by W. R. Mattoon of the Forest Service and C. B. Webster, Farm Forester of the Texas Forest Service and may be secured upon application to the Texas Forest Service, College Station, Texas.

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OUR NATIONAL PARKS. (Book Two). By Mary R. Rolfe. Benjamin H. Sanborn & Company, New York.

This description of the national parks of America as seen through the eyes of an enthusiastic sight-seeing family proves itself both valuable for its information and entertaining in the reading. Lakes, trees, animals, glaciers and the countless small and large things that make up the enchantment of these parks are given full treatment by the author, and the whole effect is extremely absorbing. Her medium of explaining through narrative and conversation is well chosen and very effective.

Besides its many illustrations, the book contains a number of pertinent poems that add greatly to the interest.—B. F. G.

ROCK GARDENS (THE HOME GARDEN HANDBOOKS). By F. F. Rockwell. The Macmillan Company, New York.

This book is purely informative in content. It is designed to give the home owner thorough instruction in this particular type of gardening, and in its purpose it is obviously successful. There are pages and chapters of technical detail clearly presented that leave no question in the mind of the reader seeking information in this relatively new field of gardening. A complete, carefully worked out index is a welcome aid to the student gardener. Mr. Rockwell has made a valuable addition to his series of home garden handbooks in this small volume.—B. F. G.

A striking story of modern courage, with powerful character drawings, is "John John and His Son John," just from the press of the Four Seas Company, of Boston, and written by the distinguished novelist, Gertrude Capen Whitney, a member of The American Forestry Association. Endorsed by leading critics, the book promises to be one of the season's best sellers.

The ninth annual report of the Department of Conservation of the State of Indiana, for the year ending September 30, 1927, includes besides the report of the Division of Forestry, reports from the Divisions of Geology, Entomology, Lands and Waters, Fish and Game, and Engineering.

Under forestry special attention is given to the 4,487 acres within the Clarke County State Forest. This has been in progress of formation since 1903 and the land has been acquired at an average price of \$9.38 per acre. The selection system of cutting is being followed to produce cross ties, rough lumber, and fuel wood.

During the year included within the report, 267,455 trees were grown and dis-

tributed from the state nursery to Indiana farmers. In addition 98,496 trees were planted on the Clarke County State Forest.

The inspection and classification under the forest tax act of 21,152 acres of privately owned land was completed. These lands will be devoted exclusively to the growing of timber.

"UP EEL RIVER." By Margaret Prescott Montague. Published by Macmillan and Company, New York. Price, \$2.50.

Every forester has enjoyed the preposterous tales of Paul Bunyan—that hero of the North woods. Perhaps some have acquired the idea that Paul is the sole subject of the lumberjack's fancy. They will be surprised to find equally impossible adventures centering around one Tony Beaver, who lived and worked in the forests of West Virginia's mountains.

Any one who has spent any time in the mountain regions or our southern states will be delighted at the accuracy with which the dialect is recorded. Always there seems to sit before the reader a lanky mountaineer who whittles as he talks. There is a slow humor in the telling of Tony's escapades that changes big, broad lies into delicious fairy tales.

"Up Eel River" is a storehouse of impossible yarns to which most of us like to listen, but only a few can tell with the artistry that demands attention.—G. H. C.

"Black Locust and How to Grow It," by Dean F. G. Miller, of the University of Idaho School of Forestry, has been recently published and is available from the School of Forestry at Moscow. It is the result of several years of study by Dean Miller over a large number of black locust plantations. He finds that the average age of these plantations was thirteen years and they provided a net return of five per cent compound interest, or \$31.88 an acre a year.

A HANDBOOK OF THE NATIVE TREES OF IOWA. By I. T. Bode and G. B. MacDonald. Published by the Extension Service of the Iowa State College of Agriculture, Ames, Iowa.

Similar to the guides to the common trees of several states, but sufficiently distinct to have an individuality of its own, this book is primarily a product of Iowa. Those who think of Iowa as a prairie state will be interested to know that eighty-seven trees are described here. The book is designed especially as a guide for schools, boys scouts, camp-fire girls and 4-H clubs, and for that reason should fill the needs of many people. The brief descriptions are illustrated by line drawings of the leaves and fruit.—G. H. C.

Trees of the Bible

(Continued from page 717)

vised Version, the Hebrew word in this instance being *tirzah*. This root word, *tirzah* (*ilex*), is, however, obsolete in Hebrew and nothing in philology seems to indicate what particular trees are meant. Yet, cypress trees there were.

The word '*oren*, a fir, occurring in the same verse, has been rendered ash in the Revised Version, and may be the maritime or stone pine frequently found there at the present time.

The word '*berosh*, for fir trees, has been applied to several trees, among them the pine, the tall juniper, and the wild cypress. The last two would seem to meet all requirements, but the wild cypress, still to be found in Lebanon, is more favored as the probable choice.

The plane tree, '*armon*, is rendered chestnut in the 1611 Version (*Genesis 30:37; Ezekiel 31:8*). The tall, thick stem of the horse chestnut of Persia may have led to this interpretation, giant specimens of which may be seen on the grounds of the Capitol at Washington, D. C., as well as of the plane tree, '*orientalis platanus*.

The '*terebinth* of *Hosea 4:13* was an elm in the earlier Version, but the translation for the poplar tree remains the same for both. "They burn incense upon the hills, under oaks and poplars and terebinths, because the shadow thereof is good."

The poplar tree, '*libhneh*, the white mountain, the root of Lebanon, was doubtless a tree on Lebanon, and yet the Arabic word, '*libna*, the '*storax*, means a shrub. This tree is said to have been common in the Valley of the Jordan, and is now found growing at Baniyas, as well as some fine examples to be encountered, in the Ghor, for instance, with smaller ones near Jericho. But the fact that it was deemed by the Arabs the best wood from which to make charcoal for gunpowder has rendered this tree almost extinct, the Turkish government at one time having levied a tax which might be paid in charcoal.

Not least in importance among the evergreen trees of the Old Testament are the Tree of Life and the Tree of the Knowledge of Good and Evil. It is significant of the interdependent relation between people and trees that, when two great truths were to be made known, the symbol used was the tree.

The Tree of Life of the *Book of Genesis* may well have had its inception in the story of the tree of life of Persia or of India, of which if a man ate or drank he took on immortality. Ezekiel pictures the ideal state and Messianic Age as a place where a life-giving river flows from the sanctuary of God, and having trees upon its banks on

either side yielding fruit every month "whose leaf shall not fade, neither shall the fruit thereof be consumed . . . and the fruit thereof shall be for meat, and the leaf for medicine" (*47:12*). John, in *Revelations 22*, draws much the same word picture and, in *2:7*, calls it "hidden manna." The *Book of Enoch*, thought to have been written in the second or first centuries before Christ, says the Tree of Life "has a fragrance beyond all fragrances; its leaves and bloom and wood wither not forever; its fruit is beautiful and resembles the date palm, and it is permitted no single mortal to touch this tree . . . until the time of the Great Judgment."

The Tree of the Knowledge of Good and Evil has not, it seems, received the same attention from the Chronicler, possibly on the theory that sufficient information had been diffused. The "tree of wisdom," it is called in the *Book of Enoch*, "fair and beautiful and of a ravishing look from which our hoary first parent and our aged first mother ate and found the knowledge of wisdom and their eyes were opened." Enoch further compares it to the Johannes bread tree, "with fruit like a cluster of grapes, very good, and the fragrance of the tree spreads far around."

Paradise itself is mentioned in the Scriptures only with reference to a forest (*Nehemiah 2:8*), or an orchard (*Ecclesiastes 2:5; Canticles 4:13*). For some of us it would be paradise indeed.

(In the January issue Miss Borah traces the oak tree through the Biblical narrative of the Old Testament.)

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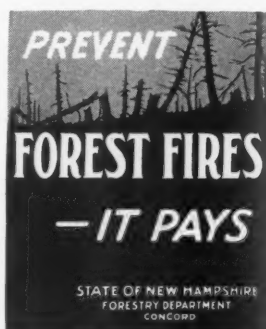
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Taming the Christmas Tree

(Continued from page 742)

harrowed the following spring. The trees should be set out in straight rows both ways, following corn markers, for a regular planting makes cultivation easier and the trees more uniform in size and shape.

The sooner the transplants are set out after shipping the better. When they arrive they should be heeled in immediately in trenches prepared for this purpose. A good way to carry them to the field is in a pail that has about two inches of water in it. This will keep the roots moist. Nurserymen sometimes indicate the depth at which the little trees should be planted by a small scar on the stem and this should be followed, since too deep or too shallow planting produces bad results. The hole should be deep enough to accommodate the roots, extended at full length, not rolled or balled up. After inserting the transplant, sprinkle the roots with fine moist earth, then coarser earth, and firm it by tramping the ground gently about the tree. A layer of loose soil scraped about the tree will help keep the ground moist.

Several methods of spacing are used on Christmas tree farms. When the trees are planted as a filler, the timber trees are spaced six by six, and the Christmas trees are planted in between, making a three by three layout when the area has been planted. If the entire crop is to be harvested for the Christmas trade, a three by three or four by four foot spacing is recommended, depending upon the fertility of the soil, the size to which the trees are to be grown, and the amount of care that is to be given the plantation.

The four by four spacing should be used if the soil is not particularly fertile or if the grower plans to produce trees more than six feet high. This method of spacing requires

approximately 2,720 trees to an acre, while the six by six planting requires 1,210 of each species. When a three by three triangle spacing is used, approximately 5,600 trees may be grown to an acre, and 4,840 are required for a three by three rectangular spacing. While cultivation is not always necessary after the trees have been set out, and too much cultivation is not desirable, in general the best results are obtained when the plantation is cultivated during the first two or three years. This can be done with an ordinary horse cultivator or a hand plow. It will keep the land comparatively free of weeds, reduce fire hazards, and stimulate the growth of the trees during the period when rapid growth is desirable. Cultivation should not be undertaken after the first week of August, since growth stimulation at this time, when the tree is normally entering its winter dormant condition, may prove harmful.

After the third year, cultivation should be discontinued altogether. A slower growth is now desired, so that the branches will develop well, making a compact, bushy tree. Further cultivation is likely to injure the side roots and make the tree grow tall and spindly, with undeveloped branches. If the trees at any time show a tendency to grow too fast, their growth can be slowed by stopping cultivation and allowing weeds to grow up. A tendency toward sickly, yellow foliage usually can be corrected by applying a top dressing of barnyard manure. Ammonium sulphate sprinkled on the soil will have a similar effect. Not all of the trees will grow at the same rate, due to varying soil conditions or other local conditions. After three or four years, however, harvesting may be begun by thinning out the larger trees. Growers report that smaller trees are becoming more and more popular, so that often the entire stand is cut after a three or four-year period. Normally, all of the trees will be ready for the market after five years, or, at the most, ten years.

If it is possible to sell the trees retail, the grower's profit will be that much greater. A direct selling plan that has met with considerable success in cases where the farm is located along a well-traveled road is to invite individual purchasers to select their own trees and take them along with them in their automobiles. This method assures a good price and also saves transportation. Whether the trees are to be sold wholesale or retail, the grower should arrange to sell them before cutting, in order to avoid waste if the market is glutted, and consequent financial loss. Contracts for Christmas trees are usually let during the summer months and the grower who plans to sell his crop wholesale should keep this in mind. When the wholesale dealer wants to cut the trees himself, as is frequently the case, it is a good plan to mark the ones that are for sale unless the entire crop is to go.

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Instances have been reported where more than one crop of Christmas trees was secured from a setting. The United States Department of Agriculture cites the instance of an Oklahoma grower of red cedar who adopted the practice of cutting off his trees just above the large lowest limbs. All but the strongest of these limbs were then cut and in the course of a year or two this limb assumed an upright position and, a few years later, developed into another Christmas tree. This same method has been used with apparent success by George Wagner, a Pennsylvania grower of Norway spruce. In this case the erect position was hastened by bending the branch and tying it so that it stood upright. Mr. Wagner has stated that he can cut one and sometimes two trees at intervals of three to five years and can show stumps from which six and eight Christmas trees have been cut within twenty years. This practice, however, is still in an experimental stage, most growers preferring to replant.

Returns from the Christmas tree venture naturally vary widely. The industry is still spotted and, like other new industries, has its hazards. The cost of hauling the trees should be considered if the plantation is remote from the prospective market. Owners of young evergreen plantations also have experienced loss and destruction from ruthless persons who stole the young trees, digging them up or cutting out the tops. Fire, too, is a great enemy of young plantations. One grass fire can wipe out every tree. Plowing furrows along the edges exposed to roads and railways or other sources from which fire is likely to come will help guard against this. If the grass is burned off between the fire line and the plantation, so much the better. It is also a good plan to protect the crop by a fence. This affords some protection from thieves and tourists and also keeps out cattle.

Plantation-grown trees should bring from \$0.25 to \$1.00 wholesale, and from \$0.50 to \$1.50 or \$2.00 retail for a good-sized tree, rates that permit a good return on the investment, especially if growth and market conditions are favorable to the grower. But the raising of Christmas trees, either as an independent business or as a side issue on the farm or forest estate, is by no means an assured bonanza. It is still a new and infant industry, and there are many problems and hazards to be taken into consideration. From a strictly business standpoint, the wild Christmas tree is still probably the tame Christmas tree's worst enemy. The novice, therefore, will do well to start his plantation on a small scale and develop as conditions, experience, and markets warrant.

Florida Has Forest Nursery

A nursery area comprising ten acres has been set aside for seedling production at the State prison farm, at Raiford, Florida, according to Harry Lee Baker, State Forester, and more than 1,500 square feet were sown during the past year.

Builder of Fire Towers Gives Scholarships

More than 1,200 men and women who served the United States in the World War, or their children, will receive free tuition in 1929 in sixty universities and colleges in all parts of the country, under provisions made by the late LaVerne Noyes, Chicago capitalist, who died in 1919. Of this number, 700 scholarships are to be furnished from earnings of the Aermotor Company, of Chicago, manufacturers of the Aermotor steel lookout towers, used extensively for forest fire detection throughout the United States.

Fire Towers in Dismal Swamp

Two new fire towers have been erected by the Virginia Forest Service in Dismal Swamp, and a third has been built in the North Carolina section. Each is 100 feet high to the base of the cabin and is equipped with an inside stairway.

The Virginia towers are located at the head of Jericho Ditch, by the side of the State road near Suffolk, and at Wallaceton, Angle Siding, in the heart of the swamp, close to the Dismal Swamp Canal and the State road. They overlook the Virginia forests. The North Carolina tower overlooks the southwestern part of the swamp, and is located in Hertford County.



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'These towers are so easy to climb that they can safely be thrown open to the public. This will stimulate popular interest in forest protection.

... The 73-foot tower shown in the picture was erected on Mt. Desert, near Putney, W. Va., by the West Virginia Game and Fish Commission.

North Carolina Timber Survey

State Forester J. S. Holmes has made a preliminary report on the results of the survey of North Carolina timber resources. This has been made by local men and employes of the State Forester's office, and afterwards interpreted and correlated within the office of the Department of Conservation. It indicates that North Carolina now has a timber stand of approximately fifteen billion board feet of saw timber.

In 1924 the stand was estimated to contain twenty-five billion board feet, in 1917 it was thirty-four billion board feet, and in 1900 the estimate was forty billion board feet.

De Merritt Goes to Pennsylvania

D. B. De Merritt, Extension Forester of Louisiana, has resigned to accept a position in the Forestry Department of the Pennsylvania State College, where he will teach forest management and mensuration. Before he entered extension work in Louisiana in 1926, Mr. De Merritt was an instructor in the University of Maine.

Two Research Projects in Idaho

Two research projects that should bring considerable light on the problem of how to lengthen the life of service of lumber and other wood products, especially those from the forests of Idaho, are being undertaken this year by graduate fellows in the University of Idaho school of forestry. One project is a cooperative one with the Western Pine Manufacturers Association while the other is in cooperation with the lumbermen of Idaho. The pine manufacturers and lumbermen have asked the school of forestry and the forest experiment station to conduct research on wood durability and have contributed toward the fellowships under which the studies are made possible.

A. J. Sharp, a graduate in forestry from Cornell University in 1928, will study the effect of kiln drying upon the factors that govern the durability of western yellow pine. Experiments comparing air-seasoned and kiln-dried material already have been started. These will be followed by observations on the relation of moisture in the wood to the development of decay.

Paul D. Kemp, who was graduated with first honors from the Pennsylvania State College forestry school in 1926, will conduct a project touching the factors affecting the durability of western white pine, Idaho's most valuable wood species. In this project attention also will be paid to the part that kiln drying plays in making the wood resistant to decay.

Wolverines Near Extinction

The wolverine, considered by many the arch villain of the animal kingdom, is disappearing throughout this country, says the Department of the Interior. Only a few are now found in the northern Rockies and Cascades, with a few more in the northern part of Canada and Alaska.

According to F. W. Schmoe, formerly Park Naturalist of Mount Rainier National Park, the bad reputation of the wolverine, which belongs to the same family as the weasel, skunk and mink, comes primarily from its habit of raiding hunters' cabins, food caches, and trap lines. If it stopped at satisfying its hunger, the wolverine would not be so hated, he says. But, not content with a full meal, after repletion it soils or mutilates everything not already destroyed.

Since it has a valuable coat of long, rich, brown fur, in addition to the meanest disposition to be found in the animal world, hunters are always glad to get a wolverine. The Eskimos value its fur above all others for edging the hoods of their parkas, since it does not collect moisture from the breath as do most furs.

Increasing Life of Wooden Poles

The potential useful life of wood poles, according to the consensus of expert opinion, varies in accordance with the kind of timber and local conditions, but is subject to the general law that the life of the wood, when supported above the ground in such a manner as to minimize butt decay, averages three or four times the life of a similar pole set in the ground. Hence, any step that is taken to support the pole above ground and minimize butt decay will result in greatly increased life of the pole.

The Williams Pole Mount, recently introduced and now in constantly increasing use in supporting telephone and telegraph poles, as well as light and power, street railway and other pole line construction, promises to add several years to the life of wood thus used. This mount provides a support for poles, permanent in character. The pole is set on a concrete base, which raises it above the ground line, before the support is applied. The base has a channel for drainage and air circulation directly under the butt of the pole.

Three National Forests Abolished

Three National Forests have recently been abolished, it has been announced by the United States Forest Service. They are the Lee National Forest, on the Camp Lee Military Reservation, in Virginia; the Jackson National Forest, on the Camp Jackson Military Reservation, in South Carolina; and the McClellan National Forest, on the Camp McClellan Military Reservation, in Alabama.

Lives of Rattlesnakes Probed by Forestry Students

Rattlesnakes are becoming scarce in Pennsylvania, according to a report handed down by T. C. Evans and H. A. Foreman, students at the Pennsylvania State Forest School, who devoted their spare time during the past summer, studying the private life of this reptile. Their findings, compiled by Dr. E. A. Zeigler, director of the school, disclose many interesting facts.

For instance, it is disclosed that rattlesnakes are equipped with six or seven sets of immature fangs that grow quickly when the mature fangs suffer injury or loss; that the snake's striking distance is usually one-third of its total length; that the only way of depriving it of its deadly poison is by removing the poison sac and that rattlesnakes' families usually arrive in fives or sevens, whereas gartersnakes and other species arrive in thirties and forties.

In spite of the scarcity of specimens in Pennsylvania the students stated that they had the extreme good fortune to see and handle one of the most beautiful specimens of a black rattlesnake that has ever come to their attention. It measured forty-nine inches and weighed about eight pounds.

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